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TRENDS IN THE DEVELOPMENT OF AGRICULTURE IN NORTH CAROLINA

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SUMMARY

The primary emphasis in this study has been centered upon tracing some of the major changes in the physical and economic structure of agriculture in North Carolina. These categories of change have exerted a mutual influence upon the agricultural development and economic growth in the state. Presenting the results of the study in sections is intended only to emphasize the particular characteristics of the various segments of our agricultural economy. The combined functional relationships of these characteristics have resulted in the development of a highly integrated agribusiness.

It is unnecessary to present a complete resume of all the factors which have contributed to the agricultural development in the state and the changes associated with its growth. However, some of the major points of interest can be summarized briefly as follows:

1. The agriculture of the state continues to be dominated by cash crops with tobacco, cotton and peanuts accounting for about 80 percent of total cash receipts from the sale of all crops. During the period 1952-1962, income from sales of all crops averaged 73 percent of all farm sales and was 11.6 percent greater in 1963 than in 1952.

2. Livestock and poultry enterprises have been expanding at a very rapid rate. Total cash receipts from these enterprises increased 70 percent from 1952 to 1963 and averaged about $271 million per year or 27 percent of total receipts from all farm sales.

3. North Carolina ranks first in the nation in total farm population. However, rural-farm population decreased from 58.6 percent of the total population in 1920 to 17.7 percent of the total in 1960.

4. Persons employed in agriculture decreased 50 percent from 1940 to 1960 while employment in other industries increased 75 percent.

5. Per capita cash farm income increased from $130 in 1940 to $1873 in 1963.

6. Realized net income per farm increased from $1809 in 1949 to $3087 in 1962 but dropped 6 percent in 1963.

7. There has been a decrease in number of farms and an increase in size of farms accompanied by a decrease in the number of farms, as defined in census reports, which are operated by tenants. The number of all tenants decreased 59.3 percent from 1935 to 1959.

8. Capital requirements have increased greatly. The average value of land and buildings per farm increased from $3490 in 1945 to $14,685 in 1959. Large amounts of capital are being invested in mechanized equipment and special facilities, irrigation equipment and other capital-using

innovations. From 1949 to 1963, total operating expenses on farms in the state increased 85.2 percent and total production expenses increased 88.6 percent.

9. The large increase in capital requirements has been accompanied by a greatly expanded use of credit. Total nonreal estate loans outstanding January 1, 1964 were over $133.6 million and outstanding real estate loans were about $376.5 million.

10. Mechanization has been an important factor in the changing structure of agriculture from the standpoint of increasing size of farms and changes in the organization and operation of farms. Workstock as a major source of farm power has almost disappeared. There were an estimated 12,756 tractors on farms in 1940 as compared to approximately 150,737 in 1959.

11. Agricultural production has become highly integrated with other segments of the industry, particularly with suppliers of production factors and many firms engaged in processing and marketing farm products.

12. Along with the general increase in size of farm operations, there has been a trend toward more highly specialized systems of farming. This is particularly true of dairying, most poultry enterprises and, to a lesser extent, in beef cattle and hog production.

13. Rates of production for practically all major crops, livestock and poultry have increased.

There is ample evidence of the progress that has been made in the agriculture of the state. There are indications that progress will continue to be made in solving the economic and technical problems associated with economic growth. There are certain conditions in the agriculture of the state which can be anticipated and which may influence agricultural growth in the future.

1. Size of farm businesses is expected to continue to increase either by consolidation of small farm units and/or more intensive use of resources on farms.

2. Mechanization and other labor-saving innovations will continue to reduce labor requirements on farms, thus increasing the amount of labor resources that must be absorbed in other sectors of the economy.

3. The need for more capital in farming operations will increase and for the most part will have to be obtained from outside sources. However, caution should be exercised in adding capital resources to farm units so as to avoid overcapitalization.

4. More farms will be organized and operated on a corporate basis.

5. Integration of farming with counterparts in the agribusiness structure will increase. Under contractual production arrangements farmers will be able to obtain some of the capital required for adding new enterprises or expanding existing enterprises. Also, farmers will be relieved of or assisted in technical management decisions by specialists representing firms with which they have contracts. Such contracts should be carefully drawn up and in such detail as necessary to protect the interests of all parties concerned.

6. Cash crops will continue to dominate the agriculture of the state, but livestock and poultry enterprises will continue to expand and contribute an increasing proportion of the total cash farm income.

7. Government programs will continue to play an important role in farmer decisions with respect to organization of the farm business.

The expectations cited above are based mainly on some of the major changes that have been observed in recent years and by no means constitute the complete framework within which agriculture will be characterized in the future. Various segments of the agribusiness structure will encounter many different problems but, for the most part, production and marketing problems will be of mutual concern to all elements of the industry. Advancements in technology and changes in economic conditions will dictate the nature of changes that will have to be made to maintain a progressive agriculture.

TRENDS IN THE DEVELOPMENT OF AGRICULTURE IN NORTH CAROLINA*

INTRODUCTION

Agriculture is a basic and integral part of the total economy in North Carolina. The magnitude of agriculture is evident throughout the entire economy of the state. Advancements in the agricultural sector have contributed greatly to the economic growth of the state. Agriculture is more than just farming. It is a chain of many links which can be divided into three major segments - supplying (production factors), producing, and the many steps combined in our marketing system to facilitate distribution.

Economic conditions faced by farmers in production and marketing have undergone rapid changes in recent years. Advances in technology have greatly influenced changes in methods and patterns of production. Farmers are relying more heavily upon items purchased from nonfarm sectors of the economy. Capital requirements in farming are increasing. These and many other factors have tended to increase the vulnerability of farmers to changes in market and price conditions. The entire structure of agriculture has become more complex.

Economic, physical and social factors are important in the development of a stable upward growth in the status of agriculture in general. A number of factors other than those faced on individual farms have influenced many of the changes which have occurred, such as domestic policies and programs, foreign trade policies, wars, the rapid growth of economic activity in the general economy, and the economic and political relationships of the United States with other countries. The effect of such widespread variables cannot be compounded into a single bundle in weighing their impact upon the agricultural industry and particularly in North Carolina because of the nature of its agricultural structure.

In a dynamic economy change is essential to growth. Although history does not necessarily repeat itself, an understanding of the nature and extent of changes that have occurred in agriculture is particularly important in planning for the future. A better understanding concerning production and price behavior will provide agricultural workers a basis for assisting farmers in decisions with respect to adjustments in production and marketing necessary for maintaining agriculture on a sound economic basis.

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Changes in production, including kinds and amounts of farm products produced, influence changes that must be made in our marketing system to maintain a progressive agriculture. Some of the changes that need to be considered include rates of production, level of output, price fluctuations, relative profitableness of different enterprises, capital requirements, location of production and the general level of economic activity in the overall economy. Such changes are of interest to suppliers of production factors, marketing and processing firms, credit agencies, agricultural agencies working with farmers, farm organizations and various civic groups.

Agricultural development in North Carolina has been influenced by many technical and economic changes such as those suggested above. Many of these changes are closely related and occur almost simultaneously. This study is aimed toward a better understanding of the agriculture of North Carolina including its characteristics, growth problems and its contributions to the general economic growth in the state.

Objectives

The general objective of this study is to trace the growth of agriculture in North Carolina and, insofar as possible, attempt to indicate some of the possibilities of future economic development. Specifically, the major objectives are as follows:

1. To analyze trends in the production of major farm commodities, including acres or numbers, rates of production, prices and income.
2. To determine some of the major factors influencing changes in the organization of farm businesses and production patterns.
3. To analyze recent changes in the number, size and resource requirements of farms in North Carolina.
4. To interpret the changes referred to above as they relate to the changing structure of agriculture in general in the state.

Procedure

Secondary data were obtained from such sources as the United States censuses, various agencies of the U. S. Department of Agriculture, Department of Commerce publications, North Carolina Department of Agriculture, research data from the North Carolina Agricultural Experiment Station and the North Carolina Agricultural Extension Service.

The background data are presented in table summaries for varying periods depending upon availability of information and the length of period needed to depict changes of vital importance affecting agricultural growth and the economic welfare of farm people. In some cases trend lines have

been fitted to the data to show the general direction and extent of change. There are cases where variations were so erratic that trend lines tended to give a distorted picture of the actual changes which have occurred.

The analysis of the data is mainly descriptive. An attempt has been made to point out the cause and effect of some of the most important changes as shown by the data. Production and marketing specialists were consulted to help determine the technical and economic implications of the changes and to evaluate their impact upon agricultural growth. In certain cases some generalizations have been made in regard to possible future expectations. However, the many uncertainties of the future precluded making specific projections as to how the various segments of our agricultural economy will behave in the future.

There are numerous factors affecting agriculture which cannot be accurately evaluated statistically, such as the effects of inflationary tendencies in the economy on the economic and social welfare of the population, international relationships, and behavior of people in various socio-economic groups in view of changes which have taken place or are currently in process. Government policies affecting agriculture also are subject to change because of the constantly changing economic and political environment.

GENERAL CHARACTERISTICS OF NORTH CAROLINA AGRICULTURE

North Carolina has a total land area of approximately 31.4 million acres of which about 51 percent is in farms. According to census definition, there are approximately 190,000 farms in the state (1959), averaging 83 acres per farm with 25 acres of cropland harvested. The total population in 1960 was about 4.6 million and the rural-farm population was estimated at 808,379, or about 18 percent of the total.

North Carolina is widely diversified in the production of crops and livestock, although cash crops tend to dominate the agriculture of the state. In 1962, North Carolina ranked fourth in the nation in cash receipts from crops and 19th in cash receipts from livestock. This combination placed the state in 11th position in the nation in total cash receipts from sale of all farm products. Farm production has become more closely allied with the nonagricultural sectors of the entire industry, including factor markets and the various activities of the market system. Advancement in technology through research and education has contributed to more progressive operations on many farms. The result has been increased yields of crops and rates of production for livestock and poultry. Despite increased costs of production, increased efficiency has resulted in a decrease in cost per unit of output in many cases.

The variations in physical features of the state account for much of the difference in types and systems of farming. North Carolina extends from the Atlantic Ocean through the Piedmont and almost across the

Appalachian Mountains. Thus, soils, topography and climate vary widely throughout the state resulting in a wide range of adaptability to crop and livestock enterprises. Because of these variations, the state has been divided into twelve types of farming areas on the basis of physical, economic and social characteristics (Figure 1). These areas are important in studying the agriculture of the state because each has certain distinctive agricultural characteristics from the standpoint of crop and livestock production and agribusiness activities associated with predominant systems of farming in the different areas.

For a more detailed discussion of the physical characteristics of the different type-of-farming areas and the general characteristics of production and marketing in the state, refer to Extension Circular No. 355 (revised), Agricultural Opportunities in North Carolina, June 1964.

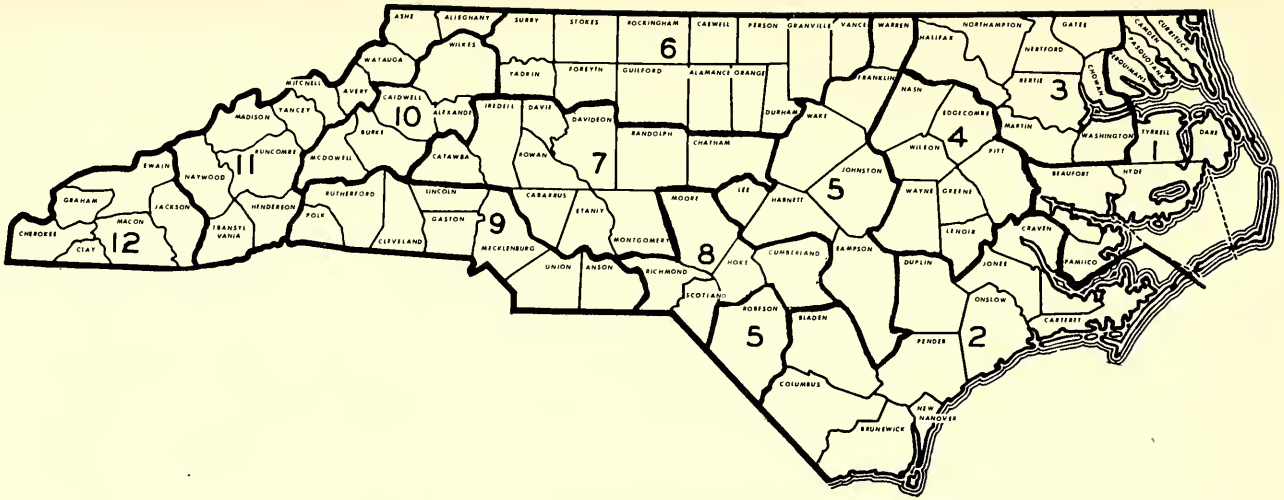

Figure 1. Type-of-farming areas in North Carolina

1. Northern Tidewater - Corn, soybeans, hogs, beef cattle, Irish potatoes, vegetables, tobacco, small grains, peanuts.
2. Southern Tidewater - Tobacco, cotton, vegetables, sweet potatoes, corn, peanuts, soybeans, hogs, beef cattle, poultry.
3. North-Central Coastal Plain - Corn, peanuts, soybeans, tobacco, cotton, hay, hogs, beef cattle.
4. Central Coastal Plain - Corn, tobacco, cotton, soybeans, peanuts, small grains, hogs.
5. Upper Coastal Plain and Eastern Piedmont - Corn, tobacco, cotton, small grains, vegetables, poultry, dairying, hogs.
6. Northern Piedmont - Corn, tobacco, small grains, dairying, beef cattle, poultry.
7. Central Piedmont - Small grains, corn, hay grain sorghum, dairying, poultry, beef cattle.
8. Sandhills - Corn, cotton, tobacco, small grains, soybeans, peaches, poultry.

Figure 1 (continued)

9. Southern Piedmont - Cotton, corn, small grains, hay, grain sorghum, poultry, dairying.
10. Foothills - Corn, small grains, cotton, tobacco, vegetables, apples, dairying, poultry.
11. Northern Mountain - Corn, vegetables, burley tobacco, Irish potatoes, apples, dairying, beef cattle.
12. Southern Mountain - Corn, vegetables, poultry, dairying, beef cattle.

Note: Underscored items indicate important cash crops or livestock.

POPULATION CHARACTERISTICS

North Carolina ranks first in the United States in total farm population (1960 U. S. Census of Population). Total population increased 78 percent from 1920 to 1960. The major portion of the population growth was accounted for by the very large increase in both urban and rural-nonfarm population. These two groups made up 41.4 percent of the total population in 1920 as compared to 82.3 percent in 1960 (Table 1).

Rural-farm population increased in numbers from 1920 to 1940. This increase was due in part to the rapid growth of agriculture during the 1920's followed by the depressed economic conditions during the 1930's. This group accounted for 58.6 percent of the total population in 1920, but, on a percentage basis, declined steadily throughout the entire period (Figure 2). In 1960, only 17.7 percent of the total population was classed as rural-farm. This was a decrease of 46 percent from the number reported in 1920.

Some rather marked changes in population occurred between 1950 and 1960. White population classed as rural-farm residents decreased 42.8 percent and nonwhites decreased 38 percent.In the rural-nonfarm group there was an increase of 45.8 percent and 54.9 percent for the white and nonwhite population, respectively. Urban residents increased 33.7 percent in the white population group compared to 26.1 percent increase for the nonwhite group.

The percentage distribution of the population by residence and color in 1950 and 1960 is shown in Table 2. As people move from agriculture to employment in other industries the main choice is whether to continue residence in the rural areas or move to urban centers. In 1950, 25.7 percent of the white population was classed as rural-nonfarm compared to 33.4 percent in 1960. The white, urban population was 29.5 percent of the total in 1960 compared to 24.8 percent in 1950. Similar differences occurred in the nonwhite population but the changes were not as great. There is some indication that many people leaving agriculture are changing to a rural-nonfarm residence status. However, the important factor in this connection is the location of alternative employment opportunities.

Table 3 shows the growth in total nonagricultural employment in North Carolina, 1939-1962. Industrial employment includes manufacturing, mining, contract construction,transportation and public utilities, wholesale and retail trade, government, personal services and miscellaneous industrial activities.

Employment in our nonagricultural sector increased more than 100 percent between 1939 and 1962. The most remarkable increases occurred in contract construction (168 percent) and manufacturing (64 percent).

Table 1. North Carolina population: Total, urban and rural, 1920-1960

Year	Total population	Urban		Rural-nonfarm		Rural-farm	
		Number	Percent of total	Number	Percent of total	Number	Percent of total
1920	2,559,123	490,370	19.2	568,807	22.2	1,499,946	58.6
1930	3,170,276	809,847	25.5	763,209	24.1	1,597,220	50.4
1940	3,571,623	974,175	27.3	940,947	26.3	1,656,501	46.4
1950	4,061,929	1,368,101	33.7	1,317,268	32.4	1,376,560	33.9
1960	4,556,155	1,801,921	39.6	1,945,855	42.7	808,379	17.7

Sources: U. S. Census of Population, 1940, 1950, and 1960, U. S. Government Printing Office, Washington.

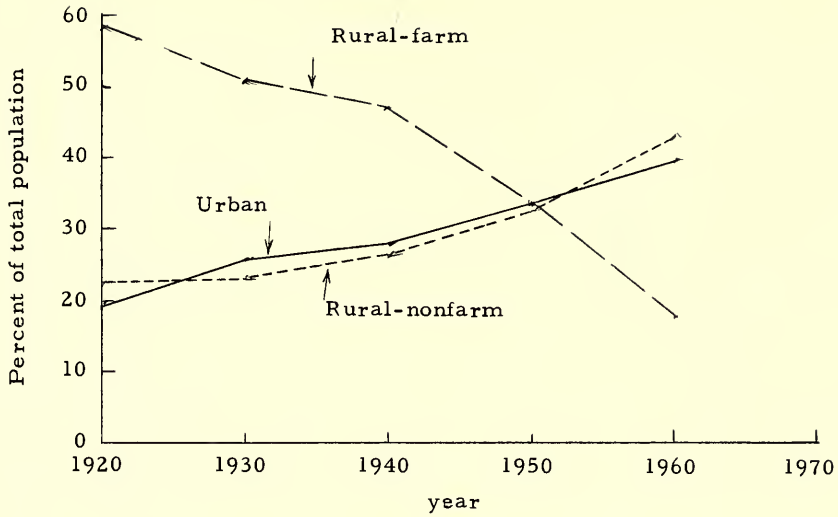

Figure 2. Comparison of shifts in total population between farm and nonfarm groups, North Carolina, 1920-1960

Table 2. Percentage distribution of total population by residence and color, North Carolina, 1950 and 1960

Residence	1950		1960	
	White	Nonwhite	White	Nonwhite
	(percent of total)			
Total	73.4	26.6	74.6	25.4
Urban	24.8	8.9	29.5	10.0
Rural-nonfarm	25.7	6.8	33.4	9.3
Rural-farm	23.0	10.9	11.7	6.0

Source: U. S. Census of Population, 1950 and 1960, U. S. Government Printing Office, Washington.

Table 3. Total nonagricultural employment, North Carolina, 1939-1962

Year	All employees	Year	All employees
	(thousands)		(thousands)
1939	622.7	1951	987.2
1940	653.6	1952	1,006.5
1941	736.3	1953	1,023.7
1942	783.5	1954	1,012.0
1943	812.7	1955	1,059.4
1944	779.4	1956	1,099.3
1945	759.2	1957	1,101.3
1946	827.8	1958	1,108.8
1947	879.6	1959	1,163.7
1948	895.0	1960	1,195.5
1949	868.2	1961	1,209.1
1950	927.8	1962	1,251.1

Source: Employment and Earnings Statistics, Bulletin No. 1370, Bureau of Labor Statistics, U. S. Department of Labor, 1963.

The shift in composition of total population is attributable mainly to industrial development which provided more opportunity for employment off the farm. This trend has been accompanied by a decrease in profitable employment opportunities on farms. The rapid expansion in the use of mechanized equipment and other forms of labor-saving technology has resulted in a decrease in the amount of labor resources needed on farms.

In 1950, North Carolina had a labor force of 1.55 million, including persons 14 years and older but excluding armed service personnel.[1] This figure increased to 1.75 million in 1960, or about 13 percent.

Table 4 shows the employment status of persons in agriculture and nonagricultural industries by class of residence. Total employment

Table 4. Persons employed in agriculture and nonagricultural industries, North Carolina, 1940-1960

Year	Occupation	State	Class of Residence		
			Urban	Rural-nonfarm	Rural-farm
		(number)		(number)	
1940	Agriculture	409,050	5,242	23,869	379,939
	Nonagriculture	799,640	393,454	289,865	116,321
	Total	1,208,690	398,696	313,734	496,260
1950	Agriculture	363,998	6,137	40,373	317,488
	Nonagriculture	1,099,354	569,201	395,553	134,600
	Total	1,463,352	575,338	435,926	452,088
1960	Agriculture	204,888	6,457	47,838	150,593
	Nonagriculture	1,400,590	704,114	582,820	113,656
	Total	1,605,478	710,571	630,658	264,249

Source: U. S. Census of Population, 1940, 1950, and 1960, U. S. Government Printing Office, Washington.

increased about 33 percent from 1940 to 1960 while agricultural employment decreased 50 percent and nonagricultural employment increased 75 percent. In this period, agricultural employment was almost entirely from rural-farm and rural-nonfarm residents. The proportion of urban residents employed in agriculture was very small but showed a slight increase over the 20-year period.

The tenure status of farm operators also has changed the pattern in the organization of farm operations (Table 5). The percent of farm

[1] U. S. Census of Population, 1950 and 1960, U. S. Government Printing Office, Washington.

Table 5. Composition of farm operators by type and color, North Carolina, 1920-1959

Year	All operators[a]				
	Total	White	Nonwhite	Percent of total	
				White	Nonwhite
	(number)			(percent)	
1920[c]	269,763	193,473	76,290	71.7	28.3
1925[c]	283,482	202,516	80,966	71.4	28.6
1930[d]	279,708	202,835	76,873	72.5	27.5
1935[c]	300,967	231,594	69,373	76.9	23.1
1940[d]	278,276	218,008	60,278	78.3	21.7
1945[c]	287,412	213,139	74,273	74.2	25.8
1950[d]	288,508	215,956	72,552	74.9	25.1
1954[e]	267,818	201,819	65,999	75.4	24.6
1959[e]	190,511	147,898	42,613	77.6	22.4

All tenants[b]					
Total	White	Nonwhite	Percent of total		Percent tenants of all operators
			White	Nonwhite	
	(number)		(percent)		(percent)
117,459	63,542	53,917	54.1	45.9	43.5
128,254	69,389	58,865	54.1	45.9	45.2
137,615	80,476	57,139	58.5	41.5	49.2
142,158	93,173	48,985	65.5	34.5	47.2
123,476	81,482	41,944	66.0	34.0	44.4
122,577	68,163	54,414	55.6	44.4	42.6
110,485	61,468	49,017	55.6	44.4	38.3
96,586	53,253	43,333	55.1	44.9	36.1
57,903	32,667	25,236	56.4	43.6	29.7

Table 5. (continued)

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[a]Includes full owners, part owners, and managers.

[b]Includes cash tenants, share-cash tenants, share tenants, croppers and miscellaneous.

[c]January 1.

[d]April 1.

[e]November.

Source: U. S. Census of Agriculture, 1959, U. S. Government Printing Office, Washington.

operators classed as tenants was about 44 percent of all operators in 1920 but only 29.7 percent in 1959. Although the total number of operators has varied considerably in different periods, the greatest change occurred between 1935 and 1959 -- a decrease of 36.7 percent. During the same period the number of all tenants decreased 59.3 percent with white tenants predominating in the decrease (65 percent).

It is now reasonable to expect that the population of North Carolina will reach about five million in 1966 or 1967. This will coincide with the time at which the population of the nation is expected to reach 200 million.

There is a continuing redistribution of population. The following data show the number of people released from the farms of this state during the four most recent decades, largely as a result of migration:

Decade	Net loss from farms
1920-30	245,000
1930-40	250,000
1940-50	470,000
1950-60	552,000

Approximately one-half of these people were absorbed in the industrial and service sectors of the state's economy while the other half moved out of the state in search of other job opportunities. Most of the instate migration from farms has been to counties with concentrated industrial activity and particularly the Piedmont area where about two-thirds of the population reside in urban centers.

It is expected that the trends shown will continue, and perhaps at an accelerated rate depending upon how fast new technological developments are incorporated in farm production and future industrial development within the state.

Based upon certain recent trends, projections of the population of North Carolina by age, 1962-1966, are shown in Table 6.[2] The basic assumptions were that mortality and migration rates of the 1950's will continue during the 1960's. This would indicate a possible increase in total population of 5.2 percent in 1966 over 1960.

Some projections have been made of the expected population and labor force in North Carolina using persons 14 years and older as reported by the decennial censuses for 1950 and 1960 as a base (Table 7).[3]

Three projections of 1975 working age population involve three different assumptions of future net interstate migration. 1975-I assumes that rates of net civilian migration for each sex and color group for the 1960-75 period will continue to be the same as for the 1950-60 period. 1975-II assumes that, starting in 1960, the migration rates will decline to zero by 1980. 1975-III assumes no net interstate migration for the entire period.

Combining the possible effects of fertility rates and the assumption that net migration rates for the 1960-75 period will continue to be the same as for the 1950-60 period appears to make 1975-I a more reasonable figure to accept. In this case we can expect an increase in total population of working age to increase 15 percent over the 1960 level and that the labor force would increase 17 percent. (The labor force projections exclude armed forces overseas.) The same ratios do not prevail between male and female nor between white and nonwhite. There is no explanation of this variation other than the influence of the trend in the 1950 to 1960 period and that any differences between groups in that period are simply extended in the projection figures.

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[2] People and Places, North Carolina State Agricultural Extension Service, Circular 440, May 1963. Also in this section, excerpts have been made from "Some Aspects of North Carolina's Changing Human Resources: Implications for Area Development," paper prepared by Selz C. Mayo, Head, Department of Rural Sociology, North Carolina State University.

[3] See Reference, Table 7.

Table 6. Projections of the population of North Carolina by age and color, 1962-1966[a]

Age	Year					
	1960	1962	1963	1964	1965	1966
			White and nonwhite			
Total	4,575,451	4,655,357	4,695,471	4,735,624	4,774,439	4,815,197
Under 6	650,385	643,349	644,594	648,711	653,544	659,483
6-17	1,145,740	1,162,123	1,169,272	1,176,044	1,183,165	1,182,091
18-24	470,003	501,939	515,396	527,147	537,204	546,591
25-44	1,192,119	1,184,511	1,179,901	1,174,752	1,169,071	1,170,763
45-64	805,037	838,147	854,654	871,119	887,549	900,739
65-up	312,167	325,288	331,649	337,851	343,903	355,530
			White			
Total	3,405,742	3,475,194	3,510,283	3,545,930	3,581,250	3,617,947
Under 6	436,772	435,248	437,523	440,957	444,721	449,096
6-17	797,863	811,874	817,220	822,691	828,198	828,562
18-24	356,398	376,645	385,961	394,740	402,981	410,872
25-44	934,997	932,936	931,708	930,351	928,864	930,817
45-64	630,717	657,723	671,529	685,529	699,727	712,630
65-up	248,995	260,768	266,337	271,662	276,759	285,970
			Nonwhite			
Total	1,169,709	1,180,163	1,185,188	1,189,694	1,193,189	1,197,250
Under 6	213,613	208,101	207,071	207,754	208,823	210,387
6-17	347,877	350,249	352,052	353,353	354,967	353,529
18-24	113,605	125,294	129,435	132,407	134,223	135,719
25-44	257,122	251,575	248,193	244,401	240,207	239,946
45-64	174,320	180,424	183,125	185,590	187,822	188,109
65-up	63,172	64,520	65,312	66,189	67,144	69,560

[a] See footnote 2.

Table 7. Population and labor force, by sex and color; actual 1950 and 1960, and projected 1975 for North Carolina (14 years and older)

Population groups	Population					Labor force				
	1950	1960	1975 I	1975 II	1975 III	1950	1960	1975 I	1975 II	1975 III
	(thousands)									
Both sexes	2,813	3,119	3,590	3,783	4,128	1,549	1,754	2,046	2,156	2,353
White	2,116	2,411	2,846	2,936	3,079	1,156	1,372	1,645	1,697	1,780
Nonwhite	697	708	743	847	1,049	393	382	403	459	569
Males	1,374	1,518	1,686	1,803	2,007	1,105	1,154	1,208	1,292	1,438
White	1,040	1,181	1,345	1,410	1,505	840	920	987	1,034	1,104
Nonwhite	333	337	340	394	502	265	234	227	262	335
Females	1,439	1,601	1,904	1,980	2,121	445	600	833	866	928
White	1,075	1,230	1,501	1,527	1,575	316	452	657	668	689
Nonwhite	364	371	403	453	546	128	148	175	197	237

Source: Preliminary data prepared for a forthcoming 20th Century Fund research study, The Southern Economy, Human Resources and Prospects for Development, directed by James G. Maddox and assisted by his staff, Department of Agricultural Economics, N. C. State College, Raleigh, North Carolina.

1950 and 1960 data taken from the decennial censuses. Population projections were made by the Bureau of the Census. Labor force estimates are consistent with the 1965 and 1970 estimates published in the 1963 Manpower Report of the President.

Components may not add to totals because of rounding in the projection process.

No reference is made here to gains in earnings if these projections materialize because of the lack of other information which would need to be applied to these data such as increases in job opportunities, changes in competitive wage rates or minimum wage laws and general changes in the structure of the economy of the state as a whole. However, it does appear that the direction of the trends in availability and potential use of abundant labor resources offers an opportunity for a progressive growth in the overall economy.

CROP PRODUCTION

Income from the sale of crops produced in North Carolina averaged about 73 percent of total sales of all farm products during the period 1952-1962. Although crop sales ranged from 70 percent of total sales in 1962 to 78.3 percent in 1952, cash receipts from crops were 10.5 greater in 1962 than in 1952. Cash receipts from the sale of livestock and poultry products increased 70 percent during this period. Total cash receipts from the sale of all farm products increased 23.5 percent. Thus, livestock and poultry accounted for a larger proportion of the total increase in cash receipts from the sale of all farm products.

Advances in the development and more widespread adoption of modern technology have been important factors influencing crop performance. New varieties of seed, better cultural practices, insect and disease control measures and improved fertilization practices have helped to increase yields for most of the important crops in the state.

Fertilizer practices have changed considerably in recent years. Total plant food applied per acre has been increased for most crops. Also, there have been improvements in the combination of plant food elements applied to crops to obtain a better balance in the nutritive requirements needed for increasing crop yields. Farmers are relying more heavily upon soil tests in determining their fertilizer needs. Total mixed fertilizers and fertilizer materials used were 7.9 percent greater in 1963-64 than in 1960-61 (periods from July 1 to June 30).

Use of mechanized equipment has increased greatly. For example, the estimated number of selected items of mechanized equipment used on North Carolina farms in 1963 was as follows:

Tractors	150,737 (1959)
Combines	17,500
Cotton harvesters	806 (one- and two-row)
Corn pickers	11,000
Side delivery rakes	16,000
Tobacco harvesters	850-900
Pickup hay balers	11,000
Forage harvesters	4,200
Peanut combines	925-950

A conservative estimate of the extent of mechanizing agricultural production in North Carolina is a general increase of 30 to 40 percent during the past 8 to 10 years. The estimated number of tractors on

farms increased 71.4 percent from 1950-1954 and 19.6 percent from 1954 to 1959. More of the farm operations are being performed mechanically. Mechanization has been an important factor in the increased efficiency in crop production.

In the following sections attention will be given to some of the major crops produced in the state. An effort will be made to interpret some of the changes that have occurred with respect to acres, prices, yields and related factors. Except for possible indications from past trends, predictions as to future expectations would be extremely hazardous in most cases. The full impact of continued advances in technology cannot be determined. Assumptions with respect to changes in production and prices must be made on a purely judgement basis, especially where supply and demand relationships are influenced by government policies and programs which continue to be debatable legislative issues.

Flue-Cured Tobacco

Flue-cured tobacco is the most important single enterprise in the state from the standpoint of total cash receipts. From 1952 to 1962, total tobacco sales averaged about $484 million per year or 67 percent of total crop sales and about 49 percent of cash receipts from all farm commodities. Total tobacco sales reached a high of $563.4 million in 1962 but dropped about 3 percent in 1963. Burley tobacco, which will be discussed later, accounts for about 2.5 percent of the total value of tobacco produced in the state.

Production of flue-cured tobacco is concentrated in type-of-farming areas 4, 5, 6, and 2 in order of relative importance from the standpoint of allocation of land resources. Auction markets are located strategically throughout all areas. There are five major companies competing for grades which they can use in their manufacturing processes. In addition, there are a large number of independent firms participating in the competitive bidding on the auction markets.

Table 8 is a summary of flue-cured tobacco production in North Carolina, 1930 to 1964. An allotment program with various modifications has been in effect since 1934, except for 1939. Since 1934, the allotted acreage has decreased from 671,179 acres to 421,093 acres, including a 10 percent decrease in 1964. There have been increases and decreases in different years, but the total net decrease amounts to about 39 percent from 1934 through 1964. The acreage adjustments represented an effort to obtain a reasonable equilibrium between supply and demand, allowing for a normal reserve of about 2.5 years' supply over expected normal disappearance.

Table 8. Acreage. yield, total production and price of flue-cured tobacco, North Carolina, 1930-1964

Year	Allotted acreage	Acres harvested	Yield per acre	Total production	Price received per lb.	Loan level
			(lbs.)	(thousand lbs.)	(cents)	(cents)
1930	--	768,000	757	581,200	12.9	--
1931	--	688,500	692	476,382	8.8	--
1932	--	462,500	624	288,750	12.1	--
1933	--	667,800	794	530,130	16.1	--
1934	691,179	486,500	847	412,055	28.6	--
1935	737,598	612,500	935	572,625	20.3	--
1936	751,043	591,000	765	451,975	22.5	--
1937	751,043	675,000	883	595,815	24.0	--
1938	582,842	603,500	844	509,470	22.7	--
1939	588,500	843,000	964	812,540	15.2	--
1940	508,550	498,000	1,038	516,835	16.6	15.0
1941	514 224	488,000	928	452,825	29.2	19.6
1942	564,378	539,000	1,052	566,810	39.1	23.7
1943	602,230	580,000	935	542,200	40.4	27.6
1944	733,836	684,000	1,077	736,990	43.1	28.9
1945	747,578	722,000	1,100	794,310	44.0	29.7
1946	839,121	802,000	1,138	912,970	49.5	32.1
1947	828,121	783,000	1,139	892,205	42.0	40.0
1948	602,235	594,000	1,245	739,380	49.8	43.9
1949	635,885	621,000	1,178	731,530	48.2	42.5
1950	641,122	640,000	1,341	858,140	55.6	45.0
1951	740,682	735,000	1,331	978,375	53.5	50.7
1952	745,617	735,000	1,222	898,090	49.9	50.6
1953	690,683	674,000	1,235	832,305	53.7	47.9
1954	695,382	686,000	1,297	889,490	54.3	47.9
1955	665,162	653,000	1,499	978,775	53.2	47.9
1956	586,032	579,000	1,661	961,495	51.6	48.3
1957	469,313	443,000	1,469	650,780	55.1	48.9
1958	469,843	429,000	1,718	736,855	58.0	50.8
1959	470,299	458,500	1,533	702,942	57.9	54.6
1960	470,835	457,500	1,836	839,870	61.0	55.5
1961	471,346	463,000	1,797	832,215	65.1	55.5
1962	471,416	480,340[a]	1,890	912,810	60.2	56.1
1963	467,510	460,500	1,999	920,660	58.2	56.6
1964[b]	421,093	416,000	2,283	949,850	58.0	57.2

[a]Measured acres as reported by ASCS.

[b]Preliminary.

Source: N.C. Agricultural Statistics, Federal-State Crop Reporting Service; N. C. Department of Agriculture, Raleigh, various issues; Annual Report on Tobacco Statistics, Statistical Bulletins Nos. 103 and

Acres harvested have varied considerably since 1934 but closely parallel changes in allotted acres (Figure 3). There has been some underplanting (harvested acres) of allotted acres. Much of this has occurred in the Northern Piedmont where the allotments on many farms were too small for the enterprise to be efficient. The increase in opportunities for off-farm employment contributed to some intentional underplanting since the labor requirements in producing tobacco are such that it would conflict with full-time nonfarm employment. The Lease and Transfer Program has tended to offset most of the intentional underplanting. The Soil Bank Program also was responsible for taking some acres out of production.

Although acres harvested have continued an erratic decline since 1946 when 802,000 acres were reported, production has continued at a high level due primarily to the general upward trend in yields (Figure 4). Between 1946 and 1963, the yield ranged from a low of 1,138 pounds (1946) to 2,283 pounds in 1964. Average over this period was 1,472 pounds per acre. The lowest total production occurred in 1957 with 650.8 million pounds when yield dropped from 1,661 pounds (1956) to 1,469 pounds and acres harvested dropped 23 percent. The variations noted do not indicate any direct relationship between fluctuations in acres and yield although the two combined are reflected in variations in production. This does not mean to imply that reduction in acres has not been a factor in the increase in yields. Given the technology to increase yields, it is only natural for farmers to try to do so in an effort to counteract the reduction in allotted acres. This appears fairly evident from the very high yields in recent years although some variation occurred as a result of unfavorable growing conditions.

Since 1939, support prices have ranged from 75 percent to 92 percent (1953) of parity with a 90 percent level predominating. Except for the sharp decrease in price in the 1939-40 seasons, the general trend in average prices received by farmers has been upward (Figure 5). Prices in both of these years suffered from the very large production in 1939, when allotments were not in effect, and despite a 41 percent drop in acres harvested in 1940. Another factor contributing to the extremely low prices in the 1939-40 seasons was the withdrawal of British buyers from the market in 1939. The Commodity Credit Corporation arranged to finance the purchase and storage of tobacco usually taken by exporters and British buyers. About 15 percent of the 1939 crop and over 25 percent of the 1940 crop was financed by the purchase and loan programs of the CCC.

The average price received over the period 1934-1963 was 44.1 cents per pound.[4] Using 1948-51 as base, a period in which

[4]Simple average unweighted by production.

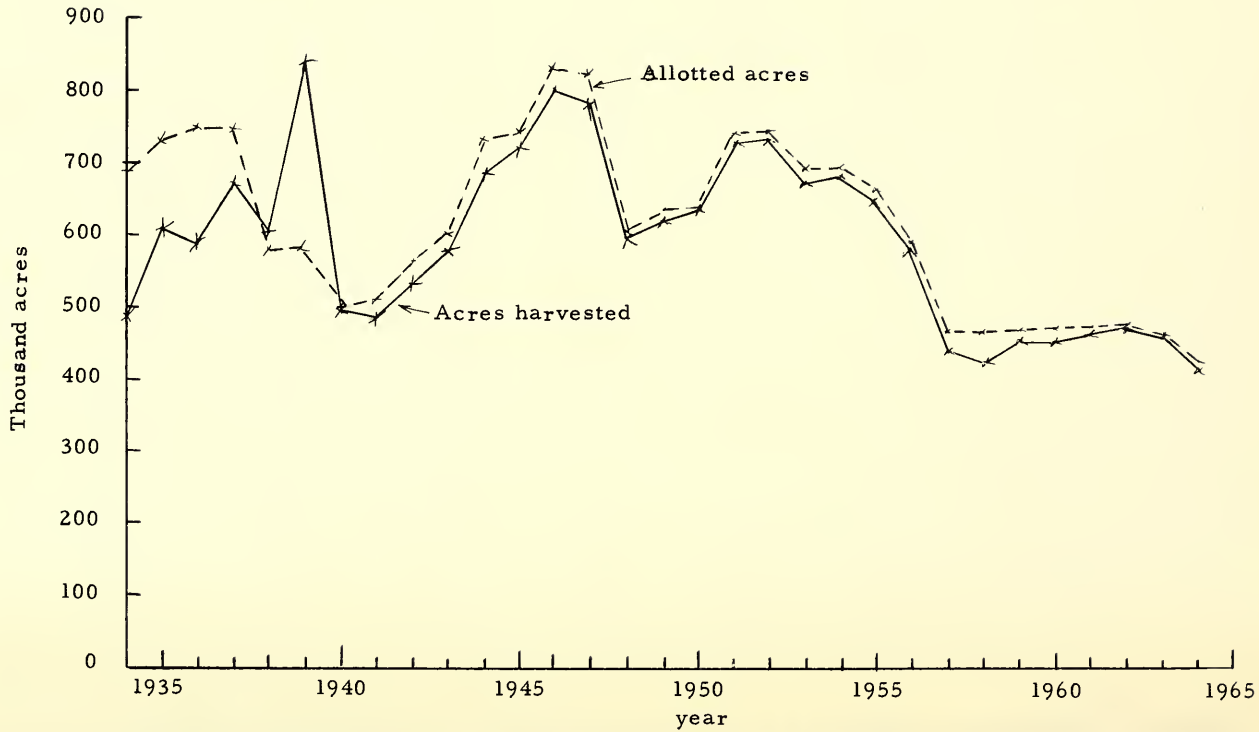

Figure 3. Allotted acres of flue-cured tobacco and acres harvested, North Carolina, 1934-1964

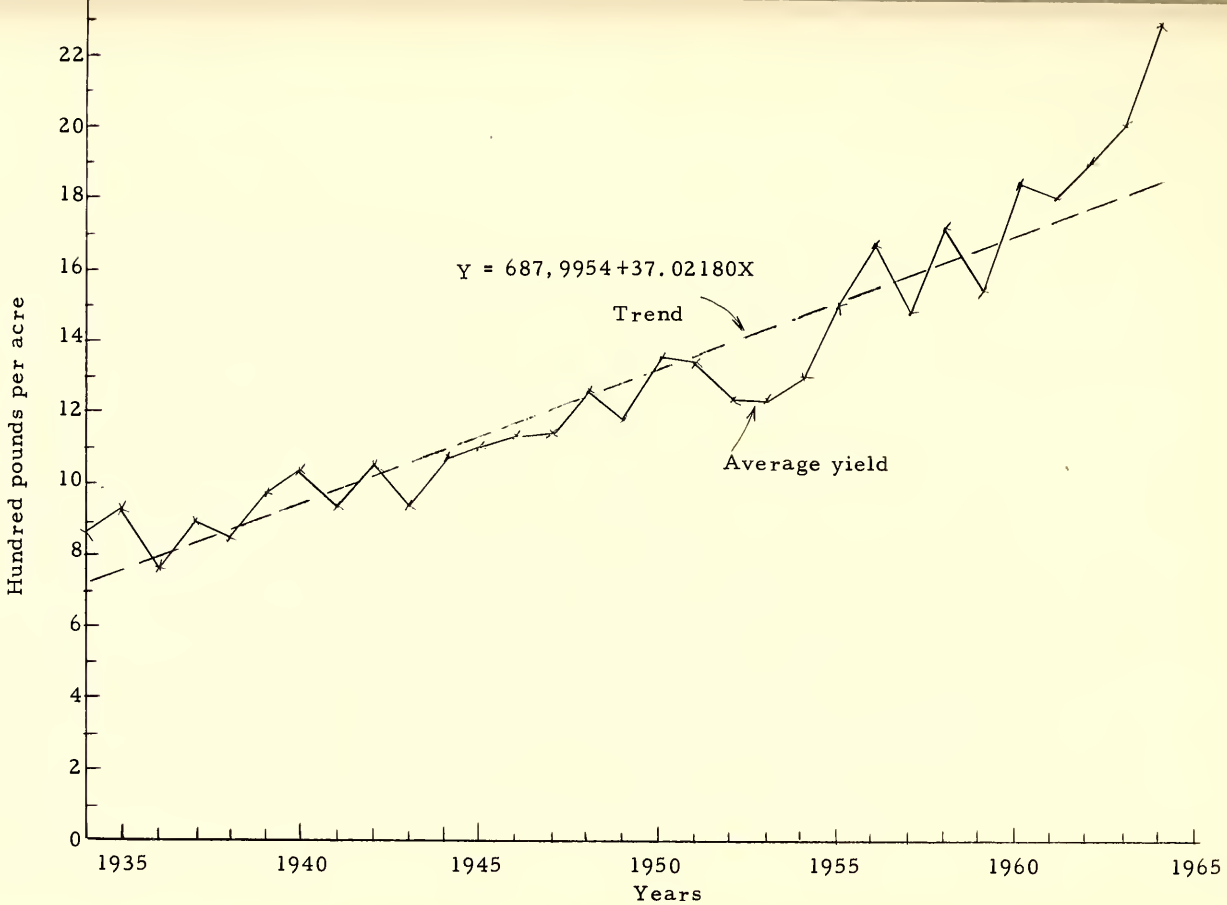

Figure 4. Average yield of flue-cured tobacco, North Carolina, 1934-1964

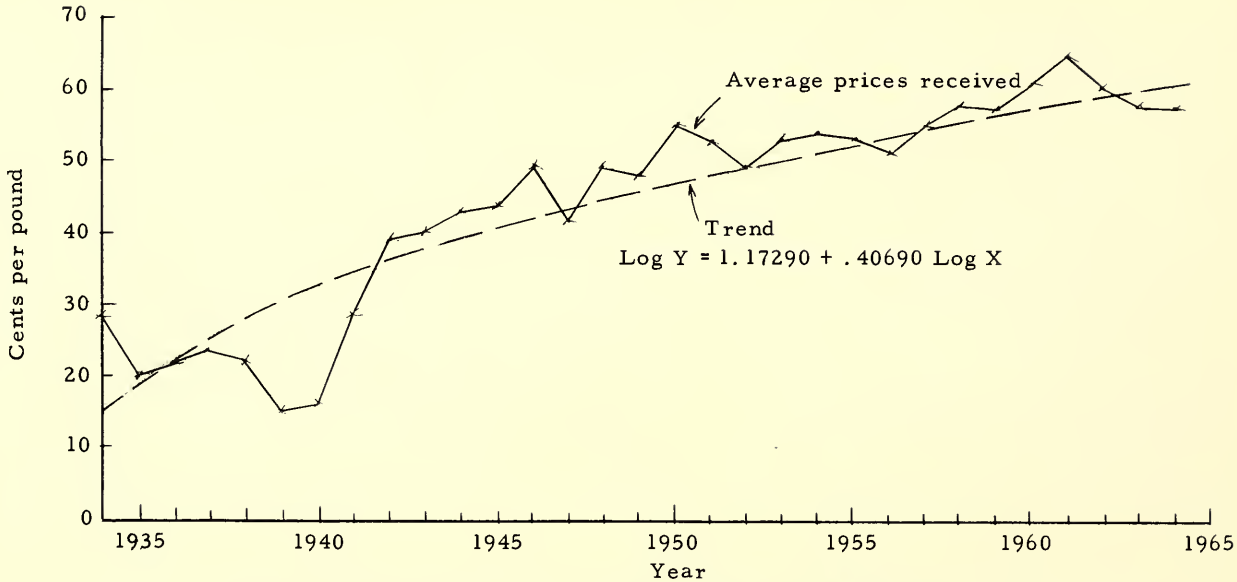

Figure 5. Average prices for flue-cured tobacco, North Carolina, 1934-1964

the price averaged 48.2 cents per pound, the index of prices received increased from 57.4 points to 117 points between 1934 and 1963.[5] Except in 1952, the average price received has been above the loan level. The highest price received was in 1961 (65.1 cents per pound). The support program has tended to reduce year-to-year fluctuations and has contributed substantially to the general upward trend in prices.

Several considerations are important to farmers in North Carolina. First, there are approximately 117,000 farms in North Carolina with flue-cured tobacco allotments. Although North Carolina has the largest average acreage per allotment, about 35 percent of the allotments are less than 2 acres. Nevertheless, tobacco is a major source of income even on many of the small farms. Second, producers in North Carolina have consistently accounted for more than two-thirds of the total flue-cured tobacco sales in the United States (Table 9). This crop alone has accounted for approximately 46 to 48 percent of total receipts from the sale of all farm products which emphasizes the importance of this enterprise to the economy of the state.

Tobacco producers are heavily dependent upon the export market. It would appear that the United States has held its own in the world market with exports averaging about 37 percent of total disappearance (Table 10). However, this is misleading because this country has not shared proportionately in the increase in world production and expanding world markets.

Another consideration is that, in the domestic market, the use of flue-cured tobacco has not increased at the same rate as the consumption of cigarettes, mainly because of the increase in use of filter tip cigarettes, use of a larger proportion of the leaf, and a substantial increase in the use of aromatic tobacco in the manufacture of cigarettes. The decrease in number of pounds consumed per person has offset to some extent the increases in total consumption associated with the increase in number of users.

Since 1950, production plus stocks of all flue-cured tobacco (types 11-14) have resulted in an increasing supply which reached 3,761 million pounds in 1964 (Table 10). A total of 3,023.8 million pounds has been placed under government loan during the period 1946-1964. Table 11 shows the government loan activity for the period from 1946 through 1964. This activity is carried out under the supervision of the Flue-Cured Tobacco Cooperative Stabilization Corporation. All stocks accumulated through 1956 have been disposed of. The largest proportion of the stocks on hand at the end of the 1964 market season were from the 1962-1964 production years. Stocks under government loan were increased considerably from marketings of the 1964 crop.

5/ Simple average for five years using two years above and two below the median year of the series.

Table 9. Total producers' sales of flue-cured tobacco and North Carolina production, 1936-1963

Year	Total flue-cured sales[a]	North Carolina	
		Production	Percent of total
	(thousand lbs.)	(thousand lbs.)	(percent)
1936	682,535	451,975	66.2
1937	854,834	595,815	70.0
1938	778,407	509,470	65.4
1939	1,132,461	812,540	71.7
1940	731,274	516,835	70.7
1941	628,501	452,825	72.0
1942	799,941	566,810	70.9
1943	781,602	542,200	69.4
1944	1,074,397	736,990	68.6
1945	1,161,442	794,310	68.4
1946	1,341,559	912,970	68.1
1947	1,304,605	892,205	68.4
1948	1,082,198	739,380	68.3
1949	1,105,104	731,530	66.2
1950	1,250,702	858,140	68.6
1951	1,441,613	978,375	67.9
1952	1,357,636	898,090	66.2
1953	1,268,614	832,305	65.6
1954	1,311,411	889,490	67.8
1955	1,478,522	978,775	66.2
1956	1,421,615	961,495	67.6
1957	972,701	650,780	66.9
1958	1,079,903	736,855	68.2
1959	1,076,853	702,942	65.3
1960	1,247,223	839,870	67.3
1961	1,248,932	832,215	66.6
1962	1,400,306	912,810	65.2
1963	1,364,175	920,660	67.5

[a]Sales of types 11-14 including North Carolina, Virginia, South Carolina, Georgia, and Florida producing areas. Excludes scrap sales.

Source: Flue-Cured Tobacco Market Review, AMS, USDA, March 1963; N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 10. Flue-cured tobacco, types 11-14: Supply and disappearance, 1950-1964

Year	Production	Stocks, July 1	Total supply	Disappearance[a]		
				Total	Domestic	Exports
	(mil. lbs.)	(mil. lbs.)	(mil. lbs.)	(mil.lbs.)	(percent of total)	
Average 1947-49	1,174	1,458	2,632	1,108	64.5	35.5
1950	1,257	1,485	2,742	1,185	63.9	36.1
1951	1,453	1,557	3,010	1,279	60.8	39.2
1952	1,365	1,731	3,096	1,244	66.6	33.4
1953	1,272	1,852	3,124	1,209	64.4	35.6
1954	1,314	1,915	3,229	1,173	63.4	36.6
1955	1,483	2,056	3,539	1,281	56.8	43.2
1956	1,423	2,258	3,681	1,170	60.3	39.7
1957	975	2,511	3,486	1,178	62.6	37.4
1958	1,081	2,308	3,389	1,179	62.4	37.6
1959	1,081	2,210	3,291	1,185	64.6	35.4
1960	1,251	2,106	3,357	1,267	62.5	37.5
1961	1,258	2,090	3,348	1,267	61.7	38.3
1962	1,408	2,081	3,489	1,208	64.2	35.8
1963	1,371	2,282	3,653	1,274	60.6	39.4
1964[b]	1,382	2,379	3,761			

[a] Year beginning July 1.

[b] Preliminary.

Source: Tobacco Situation, ERS. USDA, December 1964.

Table 11. Government loan activity, flue-cured tobacco, 1946-1964

Year	Placed under government loan		Remaining in government loan stocks, Nov. 30, 1964
	Quantity	Percent of crop	
	(mil. lbs.)	(percent)	(mil. lbs.)
1946	66.5	5.0	0
1947	232.3	17.8	0
1948	106.1	9.8	0
1949	103.5	9.4	0
1950	77.6	6.2	0
1951	142.2	9.8	0
1952	165.0	12.1	0
1953	151.4	11.9	0
1954	130.2	9.9	0
1955	298.9	20.2	0
1956	319.9	22.5	0
1957	107.8	11.1	27.0
1958	144.8	13.4	64.8
1959	55.3	5.1	18.6
1960	51.8	4.1	31.2
1961	70.5	5.6	53.9
1962	237.2	16.8	225.7
1963	277.2	20.2	254.3
1964	285.6	20.7	285.6
Total	3,023.8		961.1[a]

[a]Includes quantities received from marketings through December 17 when the season ended.

Source: Tobacco Situation, ERS, USDA, September, 1964.

In addition to the changes with respect to acres, yields and prices, there have been changes which have influenced the operation of the tobacco program. These changes include the method of computing parity, organization of the Flue-Cured Tobacco Cooperative Stabilization Corporation in 1946, introduction of the Soil Bank Program in 1956 and the Lease and Transfer Program in 1962. For an historical account of government programs for the regulation of production and/or prices of flue-cured tobacco, refer to A. E. Information Series No. 66.[6]

Although tobacco has contributed greatly to the economic growth of North Carolina, producers are faced with a critical situation. The trend in prices has been upward but whether this trend will continue is dependent upon a number of factors of unknown magnitude including: (1) continuation of a production control and price support program with some semblance of the present program, (2) the effect of competition from other tobacco producing countries on the world market, (3) trade policies of the United States with regard to exports of tobacco, and (4) effect of reports in regard to health hazards of smoking upon the domestic consumption of tobacco.

Even though support prices are maintained near present levels, total income from tobacco is almost certain to decline. The extremely large surplus in storage makes it necessary to reduce output drastically either by further reduction in allotments or substituting some other method of reducing output such as poundage control or a combination of acreage-poundage control. It would appear impractical to allow domestic prices to continue to rise by increasing support levels since this would further increase the gap between United States and world prices. Thus, disposal of surplus stocks through exports becomes more difficult except through heavy government expenditures in the form of export subsidies or other special trade arrangements.

The entire economy of the state will be affected adversely by a decline in income from tobacco because of its importance as a major source of farm income. This is important to producers and suppliers of production factors. On many farms where tobacco is the major source of income, suitable alternatives to replace the loss of income from tobacco may not be readily available. This problem is accentuated on farms with limited resources. It appears inevitable that additional labor resources must move out of agriculture, which, in turn, presents an additional problem. Much of the labor forced to leave agriculture lack technical skills to compete effectively in the nonfarm labor market.

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[6] R. Charles Brooks and J. C. Williamson, Jr., Flue-Cured Tobacco Programs, 1933-1958, Department of Agricultural Economics, North Carolina State College, Raleigh, October, 1958.

Although the current situation with respect to flue-cured tobacco may be improved through temporary remedial measures, the long-run aspects of the problem must be considered. The agriculture of the state must be reoriented so that its prosperity will be less dependent upon tobacco. Changing the structure of our agriculture cannot be accomplished quickly and probably not without some economic loss in the short run. It is not suggested that the importance of tobacco as a major enterprise be minimized but that greater emphasis be placed upon development and expansion of profitable alternative enterprises to supplement possible declines in income from tobacco and thus build a broader economic base for the agriculture of the state.

Burley Tobacco

Burley tobacco is grown in the mountain areas of the state but is concentrated primarily in type-of-farming area 11. The largest production is found in Ashe, Buncombe, Haywood, Madison, and Yancey counties. Small acreages are produced in some counties in area 12. Although burley tobacco contributes a very small proportion of total cash receipts from the sale of farm products in the state, it is usually an important source of farm income on many farms in the area where production is most concentrated and is especially important to the economy of the area.

Table 12 shows the relative importance of burley as compared to flue-cured tobacco from the standpoint of the combined value of production of both crops during the period 1954-1963. During this 10-year period, the average annual value of flue-cured tobacco was about $483.2 million compared to about $12.3 million for burley tobacco which amounted to 2.5 percent of total value of both types.

Table 13 shows acreages, yield and price for burley tobacco in North Carolina for the period 1930 to 1964. A control program has been in effect since 1934 including acreage allotments, marketing quotas and price supports. Based upon the Agricultural Adjustment Act of 1938 with subsequent amendments, the program is carried out in much the same manner as for flue-cured tobacco and is administered by the Agricultural Stabilization and Conservation Service, U. S. Department of Agriculture.

There has been considerable variation between different years in the acres harvested (Figure 6). It should be noted also that, except for 1954, acres harvested have been consistently less than the allotted acreage.

Yield of burley tobacco has shown a gradual upward trend due mainly to improved levels of technology in the production of this crop. The main factors involved are improved varieties, use of

Table 12. Value of production of flue-cured and burley tobacco, North Carolina, 1954-1963

Year	Total value of both types	Value of flue-cured	Burley	
			Value	Percent of total value
	(thousand dollars)			(percent)
1954	495,683	483,003	12,680	2.6
1955	531,496	520,845	10,651	2.0
1956	507,071	496,324	10,747	2.1
1957	369,515	358,442	11,073	3.0
1958	439,285	427,307	11,978	2.7
1959	418,401	407,055	11,346	2.7
1960	524.747	512,731	12,016	2.3
1961	555,814	541,468	14,346	2.6
1962	564,015	549,594	14,421	2.6
1963	549,195	535,622	13,573	2.5
Average	495,522	483,239	12,283	2.5

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

better cultural practices and methods of handling the crop. Sharp variations in yields between years are largely the result of variation in weather conditions.

The price of burley tobacco has shown a slight upward trend in recent years but with somewhat erratic behavior between years. Since 1950 the price has ranged from a low of 48.7 cents per pound in 1952 to a peak of 66 cents in 1961 followed by a decline of 6 cents per pound in both 1962 and 1963. Much of the price variation in years of major declines can be attributed to the poor quality of tobacco caused by unfavorable weather conditions during the growing season and the curing period. For most years the average price in North Carolina has been slightly below the national average. Another factor contributing to the more recent decline in prices is the "health scare" plus the accumulation of surplus stocks. Production in North Carolina accounts for too small a proportion of the national output to exert much, if any, influence upon the national average price.

A much smaller proportion of the total supply of burley tobacco is exported. Therefore, domestic prices are not influenced as much on the international market as in the case of flue-cured tobacco.

Table 13. Acreage, yield and price for burley tobacco, North Carolina, 1930-1964

Year	Allotted acres	Acres harvested	Yield per acre	Average price per lb.	Average support price
			(lbs.)	(cents)	(cents)[a]
1930	--	7,200	750	15.8	--
1931	--	7,100	710	9.2	--
1932	--	6,500	735	15.2	--
1933	--	9,200	785	9.9	--
1934	8,039	5,500	870	17.5	--
1935	9,476	5,200	925	21.3	--
1936	9,932	6,000	900	38.8	--
1937	9,932	9,000	975	21.4	--
1938	9,674	8,600	900	16.9	--
1939	8,477	8,100	1,070	16.7	--
1940	7,856	6,500	1,050	18.2	--
1941	7,139	6,200	1,075	31.4	--
1942	8,022	6,600	1,150	42.3	--
1943	11,425	8,500	1,225	49.0	--
1944	15,132	12,000	1,390	48.9	--
1945	15,578	13,000	1,500	38.3	--
1946	14,198	9,800	1,475	41.5	--
1947	12,833	9,600	1,560	42.3	--
1948	12,872	10,300	1,680	46.3	--
1949	13,057	10,800	1,440	43.4	--
1950	12,472	10,500	1,700	51.4	45.7
1951	13,917	12,200	1,750	54.2	49.8
1952	14,092	12,000	1,680	48.7	49.5
1953	13,119	11,400	1,800	53.7	46.5
1954	11,723	12,700	1,920	52.0	46.4
1955	10,126	9,800	1,900	57.2	46.2
1956	10,123	9,400	1,850	61.8	48.1
1957	10,125	9,600	1,975	58.4	51.7
1958	10,153	9,300	2,000	64.4	55.4
1959	10,163	9,800	2,060	56.2	57.2
1960	10,200	9,500	1,940	65.2	57.2
1961	10,869	10,400	2,090	66.0	57.2
1962	11,487	11,000	2,185	60.0	57.8
1963	11,524	11,000	2,285	54.0	58.3
1964[b]	10,366	9,800	2,200	58.0	--

[a]National average for all burley tobacco (type 31).

[b]Preliminary.

Source: N.C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues: ASCS, USDA; Tobacco Situation, TS-105, September, 1963, ERS, USDA.

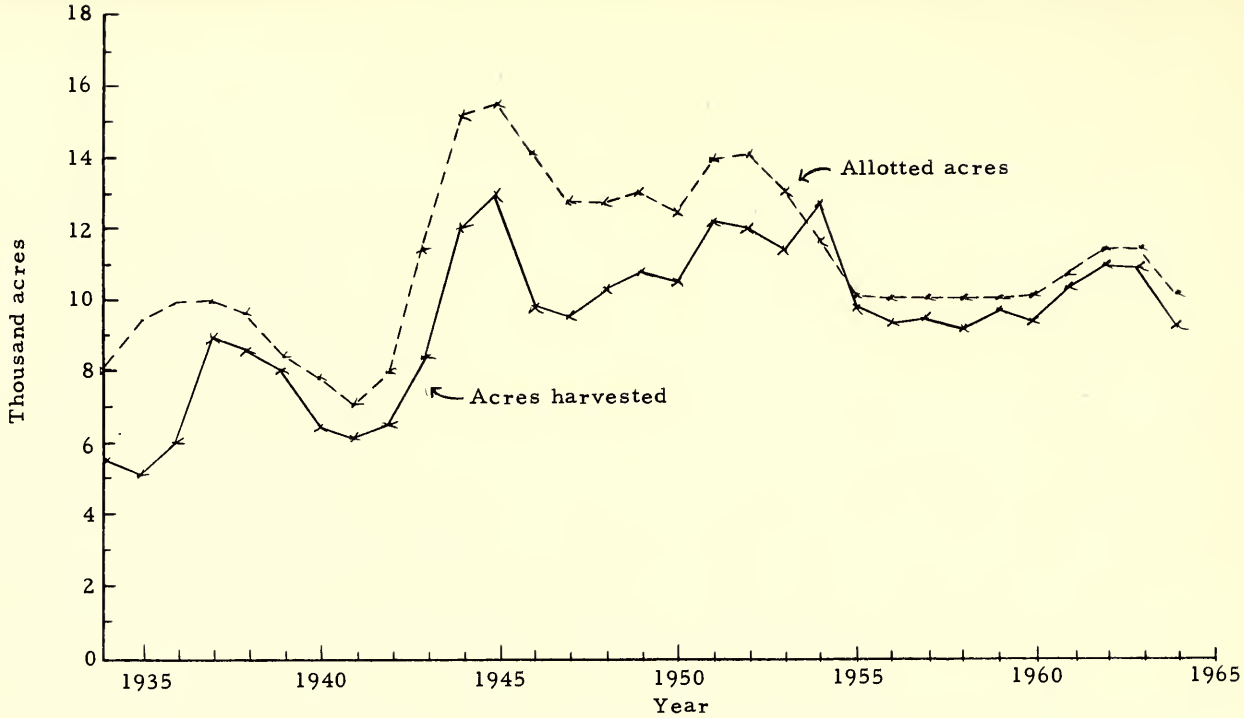

Figure 6. Acres of burley tobacco harvested and allotted acres, North Carolina, 1934-1964

Although not significant until recent years, exports of burley tobacco continue to show some increases.

It is believed that, under existing conditions influencing production and marketing practices, this crop may continue at about its present status from the standpoint of resources allocated to it and the income received by producers in the state. However, it must be recognized that producers of burley tobacco are beginning to face a serious surplus problem which is difficult to deal with because of the very small allotments on most farms. If domestic demand continues strong, the surplus problem may not prove to be as serious as for flue-cured tobacco since burley does not face as strong competition from foreign production and exports should continue to increase. An important factor influencing demand is the amount of burley used in blends of tobacco products. Burley makes up about 37 percent of the blend in the production of cigarettes and this may increase with the introduction of some of the newer brands with a higher burley content.

Cotton

Cotton is the second largest contributor to total cash receipts from the sale of crops in North Carolina. It occupies about 6 percent of the cropland in the state and tends to be concentrated in type-of-farming areas, 8, 5, 9 and 3 in order of relative importance. This is a reversal of the relative position of areas 5 and 9 as reported in 1954.[7] This shift probably resulted from changes in the relative profitableness of cotton compared to other enterprises, increase in nonfarm opportunities for employment of labor and the release and reapportionment provisions of the control program. The release and reapportionment provision provided by an amendment to the Agricultural Adjustment Act of 1938 was first made available to producers in 1954. However, this provision was not used appreciably until the act was amended again in 1959.

In 1960 growers were required to plant their allotment or release it to other growers to preserve their acreage history. The following data indicate the extent to which farmers have participated in the provisions of this program since 1960.

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[7] Based upon data from the U. S. Census of Agriculture, 1954 and 1959, U. S. Government Printing Office, Washington.

North Carolina cotton allotments
with
released and reapportioned acreages

Year	Allotment (acres)	Released (acres)	Reapportioned (acres)
1960	474, 143	61, 158	58, 764
1961	508, 452	90, 661	82, 306
1962	503, 816	103, 500	97, 721
1963	466, 143	104, 130	99, 594
1964	461, 203	106, 758	104, 185

Source: Agricultural Stabilization and Conservation Service, USDA.

A summary of cotton production in North Carolina from 1930 to 1964 is shown in Table 14. During this period the production of cotton has been somewhat erratic, especially in terms of acreage and yields. Also considerable variations in prices have occurred. These factors are reflected in the variations in cash income as indicated below for recent years.

Year	Cash receipts (thousand dollars)
1956	59, 860
1957	46, 080
1958	48, 001
1959	55, 009
1960	40, 666
1961	50, 895
1962	49, 308
1963	57, 581

Earlier years show even more variation as may be observed from the three major variables mentioned above and as shown in Table 14.

Acreage controls were in effect from 1934 through 1943 with an average of 1, 117, 000 allotted acres per year. During this period farmers averaged only about 79 percent of their allotments in harvested acres.

Acreage controls were reinstated in 1954 and have continued in effect since that time. However, farmers continue to harvest less than their allotted acres. Figure 7 shows the general trend in allotted and harvested acres from 1934 to 1964. During the past 11 years the allotments have averaged only about 45 percent as much

Table 14. Acreage, yield and average price of cotton, North Carolina, 1930-1964

Year	Allotted acreage	Acres harvested	Yield per acre	Average price
	(thousands)		(lbs.)	(cents/lb.)
1930		1,448	254	9.6
1931		1,206	298	6.0
1932		1,251	252	7.1
1933		1,077	305	10.8
1934	1,311	970	311	12.3
1935	1,511	930	294	11.5
1936	1,207	957	298	12.9
1937	1,197	1,103	338	8.6
1938	999	857	216	8.7
1939	994	737	296	9.6
1940	1,001	829	427	9.9
1941	987	795	333	17.9
1942	984	846	412	19.4
1943	983	846	338	20.2
1944	a	750	454	20.8
1945	a	575	357	23.2
1946	a	600	351	32.6
1947	a	670	323	32.6
1948	a	737	440	30.7
1949	a	880	253	29.2
1950	749	580	149	41.1
1951	a	702	370	38.8
1952	a	745	366	35.7
1953	a	775	278	33.0
1954	625	545	319	34.7
1955	516	480	350	32.1
1956	484	440	391	30.9
1957	492	344	321	30.3
1958	494	263	466	35.1
1959	474	390	395	30.1
1960	475	390	284	31.8
1961	508	396	337	34.1
1962	504	402	327	33.3
1963	466	375	449	33.2
1964[b]	461	380	480	29.8

[a]No allotments in effect.

[b]Preliminary

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues. Alloted acreages obtained from ASCS and USDA.

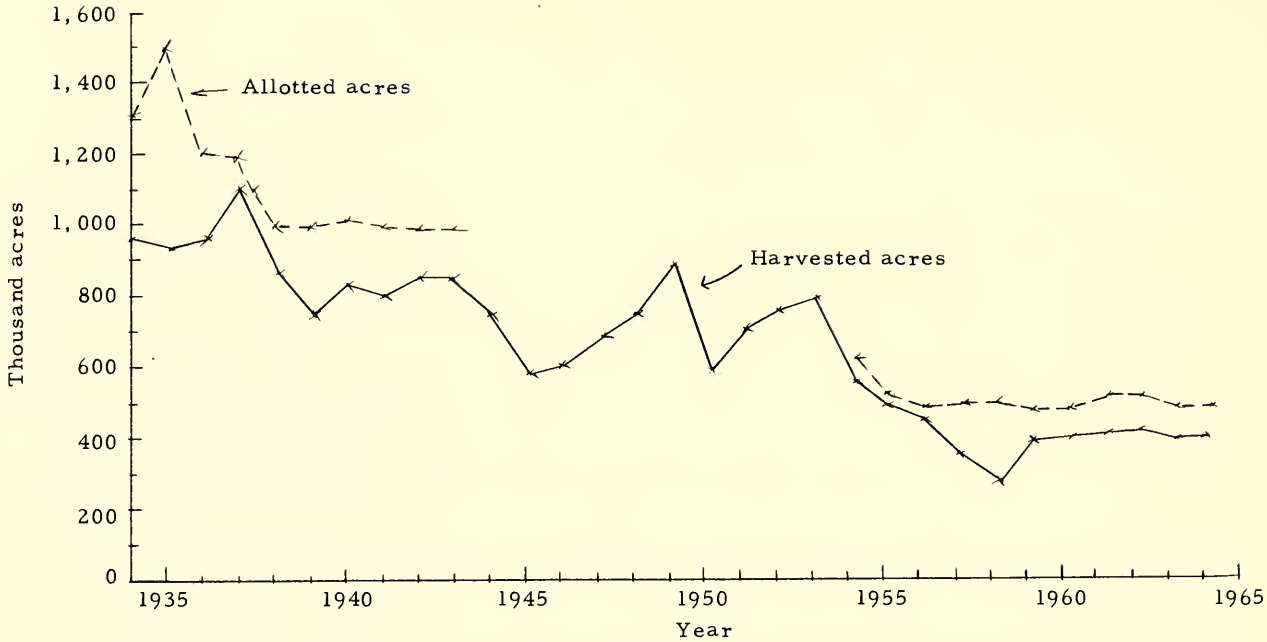

Figure 7. Acreage of cotton harvested and allotted acres, North Carolina, 1934-1964

as those allowed during the first ten years of operation under the control program. The State Agricultural Stabilization and Conservation Service estimated that, of the 466,443 acres allotted in 1963, 82,000 acres were not planted. Included in this figure were approximately 20,000 acres in the acreage reserve program of earlier years. This resulted in spite of the fact that more than 20 percent of the state allotment was released and reapportioned to growers desiring additional acreage.

The erratic behavior of yields is shown in Figure 8. In the earlier years, the low yields could be attributed to a large extent to lack of modern technology that has been developed in recent years. However, since 1948 there have been four years of low yields -- 253 pounds in 1949, 149 pounds in 1950, 278 pounds in 1953, and 284 pounds in 1960. In addition to adverse weather conditions, these were years of heavy boll weevil infestation. Improved methods of controlling disease and insects have been developed. Use of recommended production practices is being more widely accepted by producers and should help to increase rates of production which averaged only 359 pounds per acre during the period 1959-1963, including the low yield in 1960. The estimated yield in 1964 was 480 pounds.

The trend in prices received by producers for cotton is shown in Figure 9. There was a rather sharp upward trend from 1940 to 1950 when the price reached a peak of 41.1 cents per pound. This was followed by a decline for three successive years. Although prices continued to be somewhat erratic, the average for the period 1954-1963 was 32.5 cents per pound compared to an average of 13.1 cents from 1934 to 1943.[8] The estimated price in 1964 was 29.8 cents per pound.

Although cash receipts from cotton amounted to about 7 percent of total crop sales in 1963, North Carolina accounts for only a small proportion of total production in the United States as shown in Table 15. The relationship between production in North Carolina and U. S. production has not been consistent. This is to be expected with the small percent of total output contributed by the state and the wide variations in growing conditions which may occur from year to year in the different areas where cotton is grown.

It is important to note that the relative position of North Carolina in the production of cotton has declined. During the period 1930-1948, the average annual output of the state was about 5 percent of total

[8] Averages are unweighted by total production and sales value.

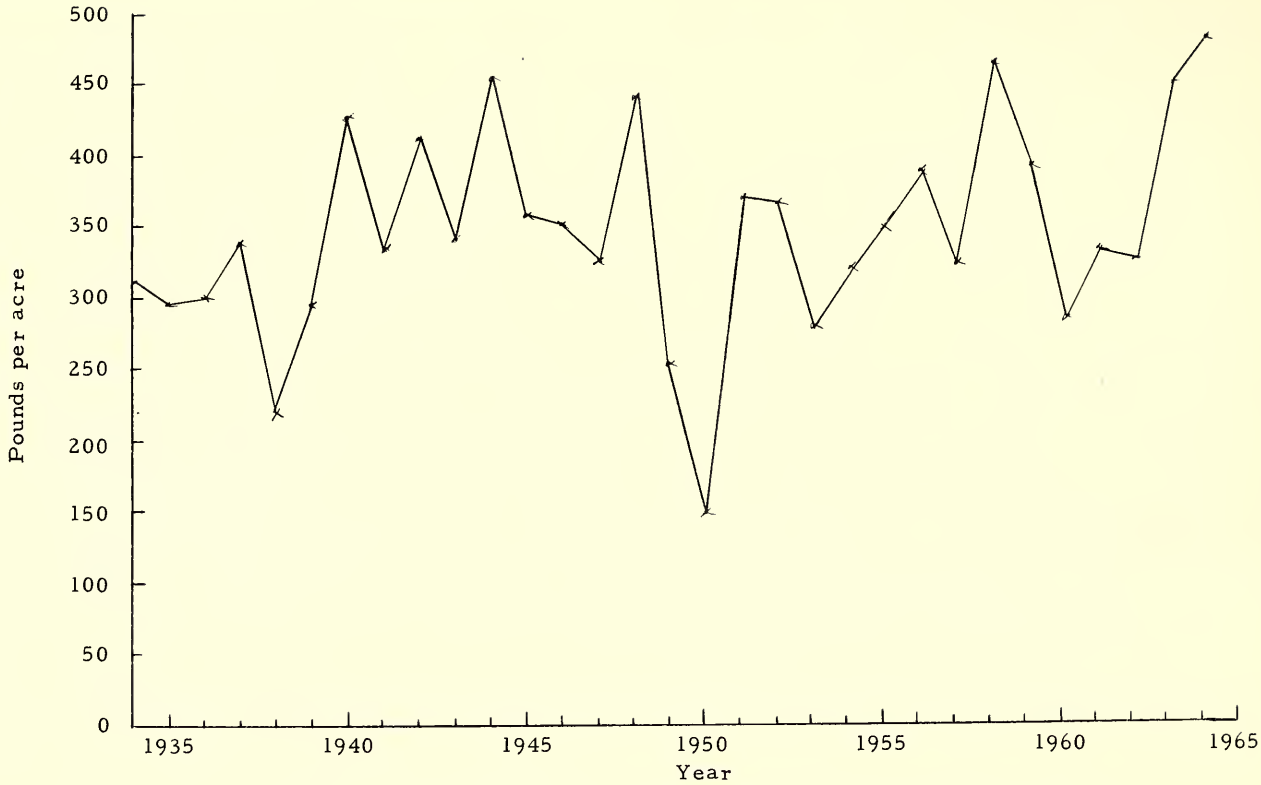

Figure 8. Average yield per acre of cotton, North Carolina, 1934-1964

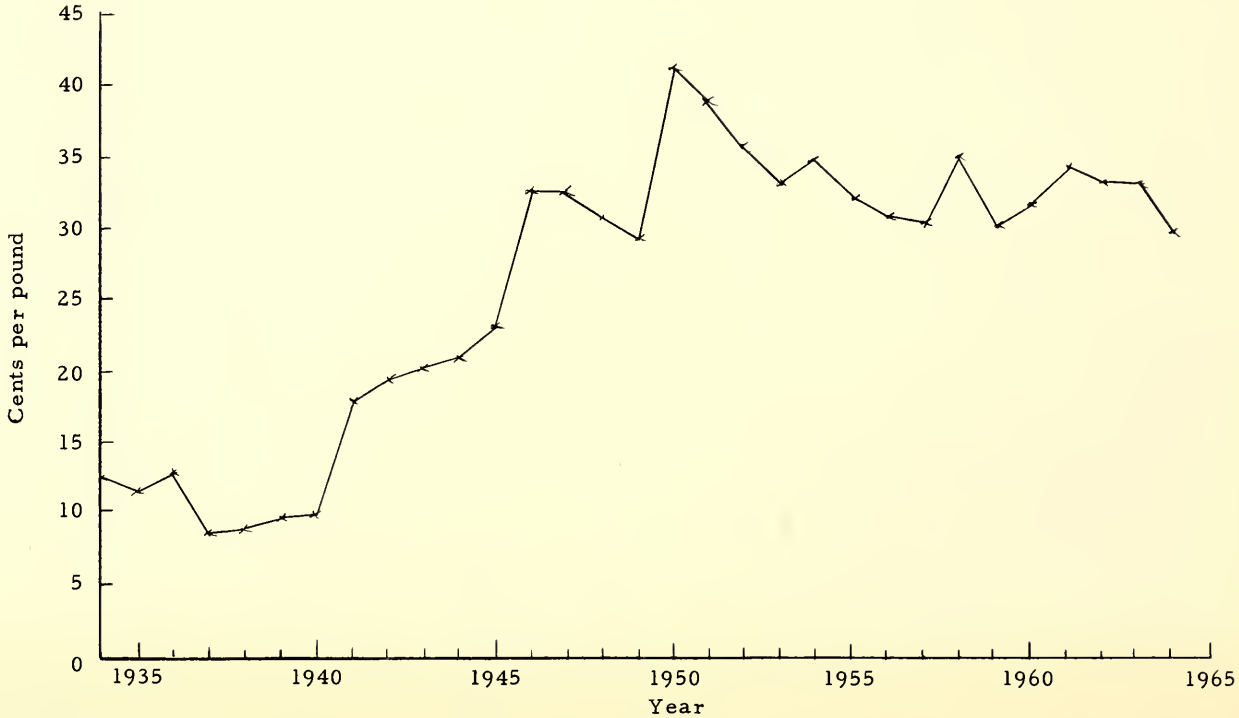

Figure 9. Average price of cotton, North Carolina, 1934-1964

Table 15. Production of cotton, United States and North Carolina, 1930-1964

Year	Production, all cotton: U. S.[a]	North Carolina: Production[a]	North Carolina: Percent of U. S. production	Year	Production, all cotton: U. S.[a]	North Carolina: Production[a]	North Carolina: Percent of U. S. production
	(thousand bales)		(percent)		(thousand bales)		(percent)
1930	13,932	771	5.5	1946	8,640	440	5.1
1931	17,097	752	4.4	1947	11,860	452	3.8
1932	13,003	660	5.1	1948	14,877	678	4.6
1933	13,047	684	5.2	1949	16,128	466	2.9
1934	9,636	631	6.6	1950	10,014	181	1.8
1935	10,638	572	5.4	1951	15,149	542	3.6
1936	12,399	597	4.8	1952	15,139	569	3.8
1937	18,946	780	4.1	1953	16,465	449	2.7
1938	11,943	388	3.3	1954	13,697	364	2.7
1939	11,817	457	3.9	1955	14,721	351	2.4
1940	12,566	739	5.9	1956	13,310	359	2.7
1941	10,744	552	5.1	1957	10,964	231	2.1
1942	12,817	727	5.7	1958	11,512	256	2.2
1943	11,427	596	5.2	1959	14,558	322	2.2
1944	12,230	710	5.8	1960	14,272	232	2.2
1945	9,015	428	4.8	1961	14,318	278	1.9
				1962	14,867	275	1.8
				1963	15,334	352	2.3
				1964[b]	15,180	374	2.5

[a] Bales of 500 pounds gross weight. [b] Preliminary.

Source: Statistics on Cotton and Related Data, Statistical Bulletin 329 and Supplement for 1963, Statistical Bulletin 329, ERS and Economic and Statistical Analysis Division, USDA.

production in the United States has been maintained at a fairly consistent high level but production in the state has averaged only about 2.5 percent of the total output. Average annual production in the state for the period 1949-62 was about 57 percent of the average from 1930-1948. Corresponding comparisons of U. S. production shows an increase of approximately 12 percent. North Carolina had an increase of about 28 percent in production in 1963 over 1962 but this was due to an increase in yield of about 38 percent since 2,200 fewer acres were harvested in 1963 than in 1962.

An important concern to the cotton industry as well as government agencies administering programs involving cotton is the relation of distribution to supply. A summary of the supply and distribution of cotton in the United States from 1930 to 1963 is presented in Table 16. During this period total supply has ranged from 14.2 million bales in 1947 to 27.4 million bales in 1956.

During the period 1940 to 1945 net exports amounted to an average of only about 6 percent of our total supply. There was a heavy demand for cotton textile products for the United States military forces and our allies. This resulted in a significant increase in cotton textile exports. There were no export controls on raw cotton but foreign markets were disrupted because of the war. Some foreign industries were destroyed or were in enemy hands. Shipping was critical because of the submarine menace and other factors.

Excluding the period 1940 through 1944 net exports have ranged from 37.8 percent of the total supply in 1931 to 8.3 percent in 1955. Net exports per year have fluctuated quite widely since 1945 and, in terms of percent of total supply, have been generally less than in the prewar years. There was a decrease of 53.8 percent in net exports from 1959 to 1962. However, gross exports were about 69 percent more in 1963 than in 1962. Among the reasons for the wide variations in our annual net exports are: (1) the relationship of U. S. prices to world prices; (2) supply-demand relationships in other countries; and (3) the nature and type of United States export programs.

Exports are more of a national problem than a state problem except for the heavy concentration of the textile industry in North Carolina. Textile manufacturers have been penalized by having to pay a higher price for domestic cotton than importers of U. S. cotton -- approximately 8.5 cents per pound above the export price. Present legislation has tended to equalize the price paid by domestic users and the price paid by countries buying cotton from the United States. This adjustment should help to increase the competitive position of cotton with synthetic fibers and increase the domestic demand for cotton.

Table 16. Supply and distribution of cotton, United States, 1930-1963

Year	Total supply[a]	Distribution: Mill consumption	Distribution: Exports	Distribution: Destroyed	Proportion imports and exports of total supply: Imports	Exports	Net exports[c]	
	(1,000 bales)[b]				(percent)		(1,000 bales)	(percent)
1930	18,102.5	5,138.9	6,755.9	28.0	.40	37.3	6,683.3	36.9
1931	22,982.0	4,771.6	8,706.6	62.0	.09	37.9	8,686.1	37.8
1932	22,438.5	6,027.6	8,417.5	30.0	.22	37.5	8,367.8	37.3
1933	20,716.4	5,582.6	7,530.5	40.0	.18	36.4	7,493.7	36.2
1934	17,159.4	5,265.6	4,766.8	30.0	.20	27.8	4,732.2	27.6
1935	17,587.1	6,261.4	5,970.8	35.0	.50	34.0	5,882.8	33.5
1936	17,755.3	7,850.3	5,432.8	45.0	.97	30.6	5,261.4	29.6
1937	22,812.1	5,691.4	5,594.9	65.0	.50	24.5	5,481.7	24.0
1938	23,152.7	6,783.0	3,324.8	66.0	.36	14.4	3,241.6	14.0
1939	24,433.0	7,704.9	6,190.6	73.0	.38	25.3	6,097.4	25.0
1940	22,859.2	9,629.3	1,111.6	70.0	.52	4.9	992.1	4.3
1941	22,734.6	11,029.9	1,124.0	50.0	.69	4.9	967.9	4.3
1942	23,016.8	10,936.9	1,480.0	60.0	.11	6.4	1,454.0	6.3
1943	21,639.7	9,826.5	1,137.9	50.0	.24	5.3	1,086.7	5.0
1944	22,620.0	9,454.5	2,006.7	50.0	.41	8.9	1,914.6	8.5
1945	20,161.5	9,055.6	3,613.0	60.0	1.22	17.9	3,367.9	16.7
1946	15,942.2	9,881.3	3,544.0	16.0	.62	22.2	3,445.2	21.6
1947	14,217.9	9,203.3	1,960.3	20.0	.81	13.8	1,844.5	13.0
1948	17,739.2	7,694.1	4,745.4	35.0	.33	26.8	4,687.4	26.4
1949	21,250.5	8,731.6	5,771.0	37.0	.43	27.2	5,678.8	26.7
1950	16,665.7	10,357.0	4,107.7	27.0	.41	24.7	4,039.7	24.2
1951	17,244.3	9,116.5	5,514.8	35.0	.15	32.0	5,488.7	31.8
1952	17,874.3	9,358.1	3,048.2	50.0	.34	17.1	2,987.5	16.7
1953	21,898.5	8,475.5	3,760.5	75.0	.23	17.2	3,711.0	16.9
1954	23,167.3	8,729.9	3,445.1	60.0	.21	14.9	3,397.2	14.7
1955	25,717.6	9,084.7	2,193.6	--	.20	8.5	2,142.9	8.3
1956	27,416.9	8,496.2	7,539.8	--	.15	27.5	7,499.9	27.4
1957	22,151.3	7,899.8	5,707.1	--	.19	25.8	5,665.6	25.6
1958	20,008.7	8,593.7	2,766.0	--	.25	13.8	2,715.0	13.6
1959	23,265.5	8,879.4	7,178.2	--	.20	30.9	7,130.6	30.7
1960	21,795.7	8,131.3	6,625.0	--	.19	30.4	6,583.5	30.2
1961	21,545.6	8,783.2	4,907.8	--	.32	22.8	4,839.6	22.5
1962	22,575.4	8,258.0	3,348.0	--	.24	14.8	3,293.3	14.6
1963	26,205.0	8,468.0	5,658.0	--	-	21.6	--	--

[a] Includes carryover, production and imports but excludes extra long staple.

[b] "Running bales" counted as they move through the market regardless of weight except foreign which is in 500-pound bales.

[c] Total exports less imports.

Source: Statistics on Cotton and Related Data, Statistical Bulletin 329, and Supplement for 1963, ERS and Economic and Statistical Analysis Division, USDA; Cotton Situation, ERS, USDA, March, 1964 and January, 1965.

Table 17 shows the gap that has developed in per capita consumption of cotton and synthetic fibers since 1945 based upon mill consumption relative to the total population. (See Figure 10 for comparisons.) During this 20-year period per capita consumption of cotton fiber has declined from 32.3 pounds to 22.5 pounds or about 30 percent. Synthetic fibers accounted for 13.6 percent of total fiber consumption in 1945 compared to 38.6 percent in 1964. New synthetic fibers and improvements in the production efficiency of those currently on the market are likely to continue to have an adverse effect upon the position of cotton in the total fiber market. [9]

Increased efficiency in the production of cotton has greatly increased its income potential in North Carolina. Even though production in the state will continue to be small relative to total production in the United States, it is expected to continue to be an important source of income to many North Carolina farmers and to play an important role in the overall economy of the state.

Peanuts

Peanuts account for about 5 percent of cash receipts from crop sales in North Carolina. From 1952 to 1962, the average annual cash receipts from this crop were about $33.3 million with a range of $24.7 million in 1955 to $40.1 million in 1962. Sales in 1963 amounted to about $40.0 million.

Commercial peanut production in North Carolina is concentrated in type-of-farming area 3 with about 21 percent of the total cropland of the area planted to this crop. There are fringe areas of production including some counties in areas 1, 2, and 4. Peanuts occupy about 2.6 percent of all cropland in the state. [10]

The major area of production in North Carolina (Area 3) adjoins a six-county area of large peanut production in Virginia. This entire area has been referred to as the "Virginia-North Carolina Peanut Area" (Figure 11). During the period 1930 to 1963, the average annual production of peanuts in Virginia amounted to 185,991 thousand pounds as compared to 285,767 thousand pounds in North Carolina. This means that North Carolina has averaged producing about 61 percent of all commercial peanuts in the two-state area (Table 18). Most of the peanuts grown are the Virginia type with NC 2 and Virginia Bunch varieties predominating.

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[9] For an indication of possible increases in the consumption of cotton fibers, refer to Technical Bulletin No. 1301, The Demand for Textile Fibers in the United States, ERS, USDA, November, 1963.

[10] U. S. Census of Agriculture, 1959, U. S. Government Printing Office, Washington.

Table 17. Comparison of mill consumption of cotton and synthetic fibers per capita, United States, 1945-1964

Year	Cotton[a]	Rayon and acetate[b]	Man-made noncellulosic fibers[c]
		(lbs. per capita)	
1945	32.3	5.5	.4
1946	34.0	6.2	.4
1947	32.4	6.9	.4
1948	30.4	7.8	.5
1949	25.7	6.7	.6
1950	30.9	8.9	.9
1951	31.5	8.3	1.3
1952	28.5	7.7	1.6
1953	27.9	7.7	1.8
1954	25.4	7.1	2.0
1955	26.5	8.6	2.6
1956	25.9	7.1	2.9
1957	23.7	6.9	3.3
1958	22.2	6.5	3.3
1959	24.5	7.1	4.2
1960	23.2	5.8	4.2
1961	22.2	6.1	4.7
1962	22.4	6.8	5.8
1963	21.4	7.6	6.7
1964[d]	22.5	7.9	7.9

[a]Mill consumption as reported by the Bureau of Census based upon total population as of July 1.

[b]Includes filament and staple fibers, including United States producers' domestic shipments plus imports for consumption.

[c]Includes nylon, orlon, glass fiber, etc. United States production less exports plus imports for consumption.

[d]Preliminary.

Source: Cotton Situation, ERS, USDA, March, 1964 and November, 1964.

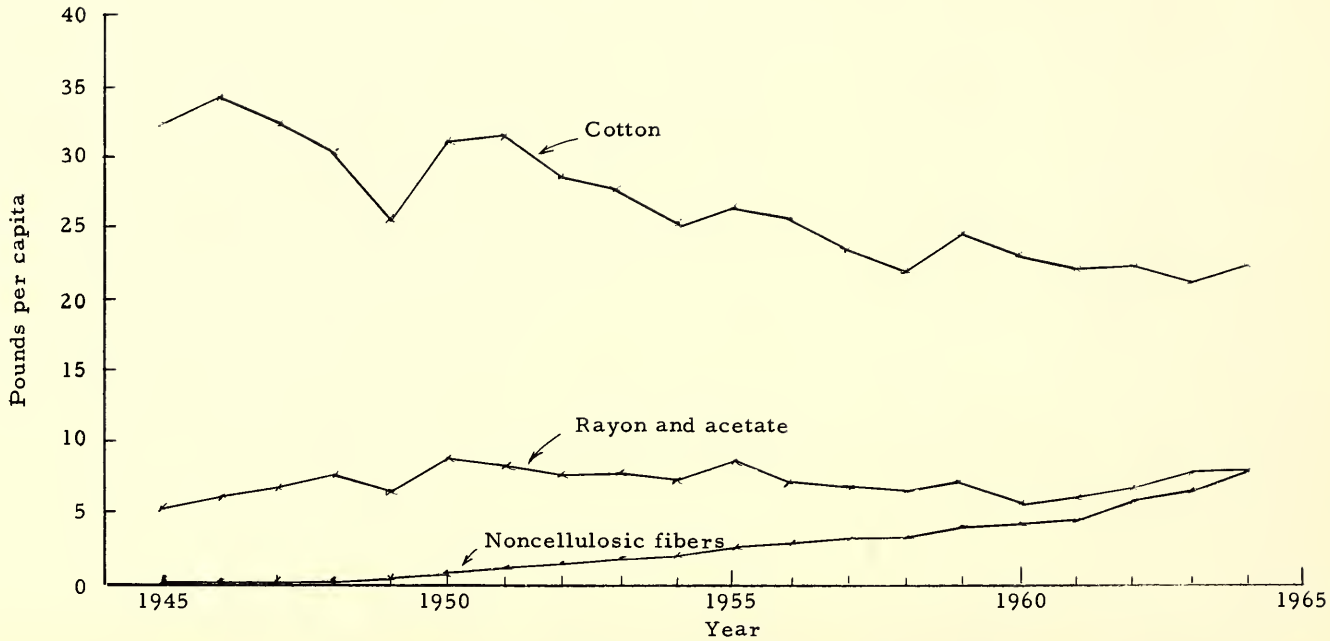

Figure 10. Per capita consumption of cotton and synthetic fibers, United States, 1945-1964

Figure 11. Location and type of peanut marketing outlets, Virginia-North Carolina Peanut Area, 1959

Table 18. Production of peanuts, Virginia-North Carolina area, 1930-1963

Year	Total production		Total	Percent of total	
	Virginia	North Carolina	Va. & N. C.	Virginia	North Carolina
	(thousand pounds)		(thousand pounds)	(percent)	
1930	99,360	178,350	277,710	35.8	64.2
1931	172,840	275,000	447,840	38.6	61.4
1932	146,590	229,500	376,090	39.0	61.0
1933	111,150	180,500	291,650	38.1	61.9
1934	143,500	252,280	395,780	36.3	63.7
1935	149,100	252,000	401,100	37.2	62.8
1936	148,320	258,000	406,320	36.5	63.5
1937	177,660	307,400	485,060	36.6	63.4
1938	136,300	244,110	380,410	35.8	64.2
1939	179,080	291,550	470,630	38.1	61.9
1940	215,670	367,510	583,180	37.0	63.0
1941	169,510	274,800	444,310	38.2	61.8
1942	170,200	338,850	509,050	33.4	66.6
1943	171,000	307,500	478,500	35.7	64.3
1944	181,720	354,000	535,720	33.9	66.1
1945	149,460	304,000	453,460	33.0	67.0
1946	191,250	272,875	464,125	41.2	58.8
1947	197,640	300,760	498,400	39.7	60.3
1948	235,340	346,625	581,965	40.4	59.6
1949	193,200	242,650	435,850	44.3	55.7
1950	227,920	252,880	480,800	47.4	52.6
1951	237,980	319,950	557,930	42.7	57.3
1952	240,720	306,870	547,590	44.0	56.0
1953	218,900	270,290	489,190	44.7	55.3
1954	172,250	250,800	423,050	40.7	59.3
1955	189,960	201,160	391,120	48.6	51.4
1956	245,440	351,452	596,892	41.1	58.9
1957	218,360	306,000	524,360	31.6	58.4
1958	220,500	331,080	551,580	40.0	60.0
1959	198,640	281,240	479,880	41.4	58.6
1960	196,560	318,560	515,120	38.2	61.8
1961	192,400	309,760	502,160	38.3	61.7
1962	239,200	352,000	591,200	40.5	59.5
1963[a]	211,120	362,560	573,680	36.8	63.2

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues, Field and Seed Crops, U. S. Department of Agriculture, Crop Reporting Board, various issues; Crop Production, U. S. Department of Agriculture, Statistical Bulletin No. 108, March 1952 and Statistical Bulletin No. 115, October 1952; Peanuts, U. S. Department of Agriculture, BAE, March 1948.

A summary of acreage, yield and price of peanuts grown in North Carolina from 1930 to 1964 is presented in Table 19. A control program was in effect from 1935 to 1942. During this period the allotted acreage averaged 217, 144 acres per year compared to an average of 241, 750 acres reported harvested. From 1943 to 1948 when there was no control program, acres reported harvested averaged 299, 500 acres per year. The control program was reinstated in 1949 and has continued to the present time. For this 16-year period, allotments averaged 186, 859 acres per year compared to 190, 733 acres reported harvested.

Acres harvested were increased greatly beginning in 1942 and reached a high of 320, 000 acres in 1945 (Figure 12). The acreage remained high until 1948 and dropped sharply in 1949 when the new control program went into effect. Acres continued to decline as allotted acres were reduced and reached a low of 173, 000 acres in 1964. There has been little change in acreage since 1957.

The yield per acre has been extremely erratic (Figure 13). This variation is believed to be due primarily to variations in weather conditions. The following weather conditions would tend to reduce peanut yields: (1) a cool late spring, (2) a wet spring, (3) a wet July, and (4) a wet September or October. These conditions affect planting time, germination, fruiting and harvesting. When two or more of the conditions mentioned above occur the same year, reduction in yield can be very severe.

A review of recent weather patterns shows 1951, 1952, and 1953 being comparatively good years, weather-wise, favoring good yields. In 1954 drought conditions prevailed and although adequate rainfall occurred late in the season, average yield per acre dropped slightly from the 1953 level.

In 1955 peanut yield reached the lowest level for the entire period from 1951 through 1964 with an average of 1, 070 pounds per acre. Distribution of rainfall was erratic but the major factor causing low yields was a series of hurricanes and heavy rains which occurred about harvest time and just after the peanuts had been stacked -- a year in which almost all of the peanuts were harvested by use of the "stackpole" method. In 1959 yields dropped 280 pounds because planting was about three weeks later than normal. Research data show that delay in planting of three or more weeks from average planting dates can reduce yields as much as 300 to 600 pounds per acre. 1962 and 1963 were excellent years from many standpoints and producers reported the highest yields on record. The estimated yield in 1964 was 2, 100 pounds but may have been higher if harvest conditions had been more favorable.

The above instances are cited to indicate the importance of climatic conditions in obtaining consistent high yields. Another important factor is cultural practices, including fertilization and protective measures against insects and disease.

Table 19. Acreage, yield and price of peanuts, North Carolina, 1930-1964

Year	Allotted acres	Harvested acres	Average yield per acre	Average price per lb.	Average support level and percent of parity[a]	
		(thousands)	(lbs.)	(cents)	(cents/lb.)	(percent)
1930		205	870	3.4		
1931		250	1,100	1.6		
1932		255	900	1.4		
1933		190	950	3.0		
1934		238	1,060	3.4		
1935	217,444	224	1,125	3.2		
1936	214,672	240	1,075	4.2		
1937	214,672	232	1,325	3.4		
1938	211,040	237	1,030	3.5		
1939	215,261	245	1,190	3.6		
1940	214,228	257	1,430	3.5		
1941	224,133	229	1,200	5.4	4.4	68
1942	225,702	270	1,255	7.4	6.6	90
1943		300	1,025	7.4	7.1	90
1944		295	1,200	8.8	7.3	90
1945		320	950	9.2	7.5	90
1946		295	925	10.2	8.6	90
1947		292	1,030	11.0	10.0	90
1948		295	1,175	10.8	10.8	90
1949	243,035	230	1,055	10.8	10.5	90
1950	226,069	227	1,100	12.6	10.8	90
1951	238,558	232	1,390	12.1	11.5	88
1952	193,605	191	1,605	11.3	12.0	90
1953	176,289	179	1,510	12.0	11.9	90
1954	168,813	176	1,425	13.4	12.2	90
1955	181,717	188	1,070	12.9	12.2	90
1956	191,462	198	1,775	11.8	11.4	86
1957	169,174	180	1,700	10.5	11.1	82
1958	169,224	178	1,860	10.8	11.3	80.8
1959	169,249	178	1,580	10.7	10.3	75
1960	169,089	176	1,810	11.0	10.7	78
1961	168,909	176	1,760	11.6	11.7	86
1962	168,860	176	2,000	11.9	11.7	82
1963	168,837	176	2,060	11.5	11.8	80
1964[b]	168,677	173	2,100	11.9	11.8	-

[a]Beginning in 1958, support prices were quoted on a per ton basis. These data have been converted to the nearest cents per pound.

[b]Preliminary

Source: N. C. Agricultural Statistics and North Carolina Farm Report, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues; ASCS, USDA.

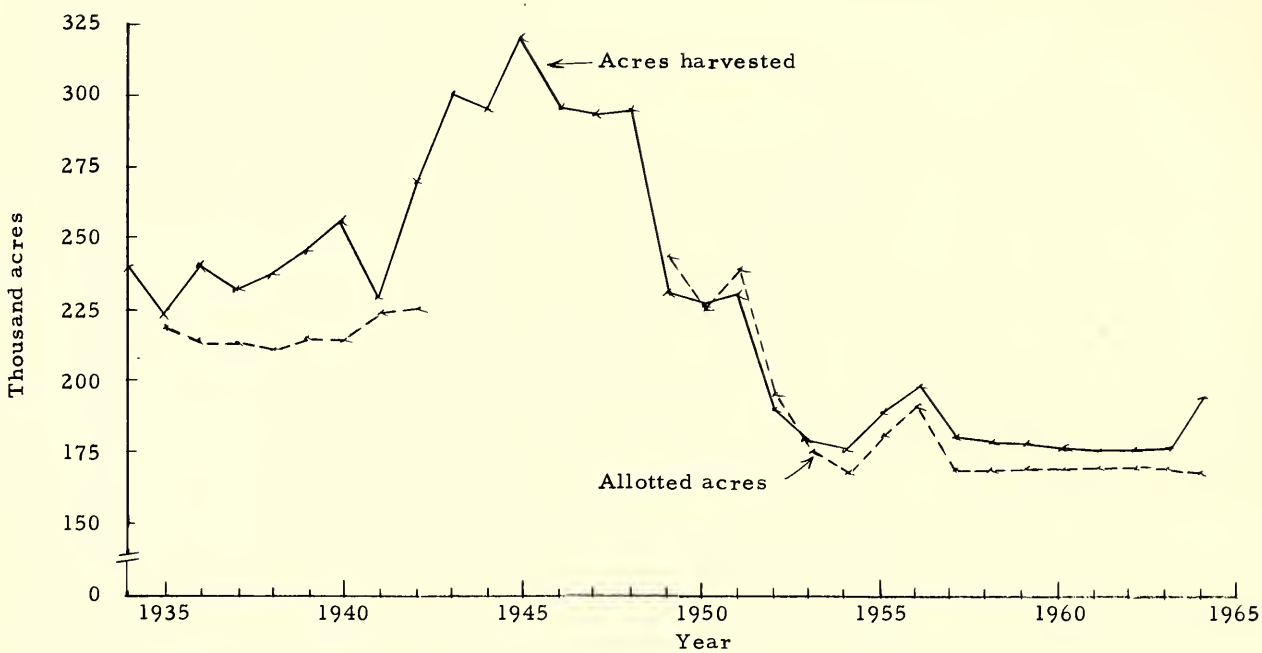

Figure 12. Acres of peanuts harvested and allotted acres, North Carolina, 1934-1964

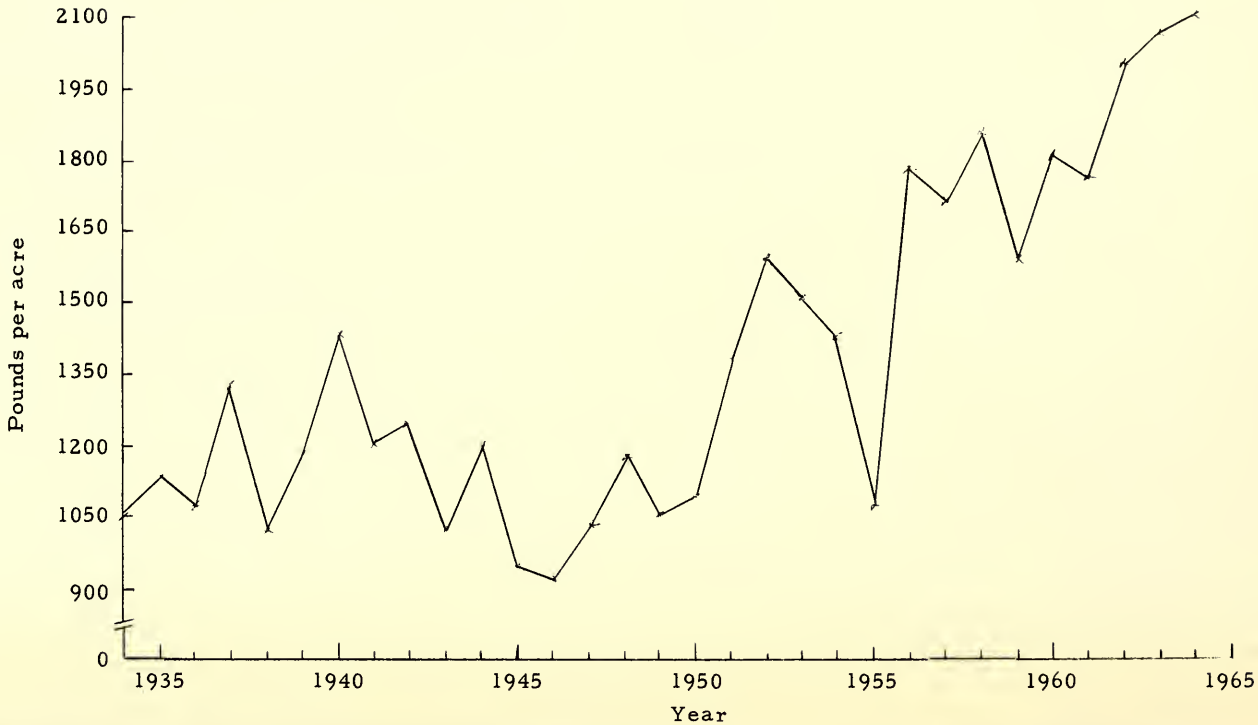

Figure 13. Average yield of peanuts, North Carolina, 1934-1964

Considerable technological advancement has been made in recent years affecting peanut production. Some of these include the development of new varieties or improving strains of older varieties, use of chemicals in control of weeds and grass, mechanical harvesting (windrow method vs. stackpole method) and bulk handling. A recent study of the windrow method of harvesting showed a reduction in labor requirements of approximately 84 percent over the stackpole method.[11] This new method of harvesting has contributed to greater economic efficiency in bulk handling of peanuts. Indications are that, with the new methods of harvesting and drying peanuts, bulk handling will continue to replace the traditional method of handling in bags. This shift means that receiving station operators will have to modernize their facilities for handling and storing.[12]

With a more widespread adoption of recommended practices by producers, yields of peanuts should continue at a high level except as influenced by weather conditions from year to year. Many producers are obtaining yields of 3,000 pounds or more per acre and some growers have exceeded 4,000 pounds.

Prices of peanuts were quite low during the period 1930-1940, averaging only 3.1 cents per pound with a range of 1.4 to 4.2 cents per pound. Prices began to rise in 1941 and since 1946 have averaged 11.5 cents per pound. This was slightly higher than the average support price of 11.1 cents per pound during the same period. Support prices were first made mandatory in 1941. However, with few exceptions the market price has been above the support level. Although prices have been somewhat erratic, the general trend has been upward (Figure 14).

Peanut prices are supported by the federal government through the Commodity Credit Corporation which makes it a part of the general market structure for farmers' stock peanuts. Growers may place peanuts under loan with the Peanut Growers Cooperative Association which holds warehouse contracts with CCC to store peanuts. Advance loans may be made to growers for peanuts meeting certain minimum grade requirements. A federal or federal-state

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[11] Walter H. Pierce and William T. Mills, An Evaluation of a Mechanized System of Peanut Production in North Carolina, Bulletin No. 413, N. C. Agricultural Experiment Station, Raleigh, August 1961.

[12] E. Walton Jones and Richard A. King, Economic Efficiency in Constructing and Operating Bulk Peanut Receiving Stations, A. E. Information Series No. 107, Department of Agricultural Economics, North Carolina Agricultural Experiment Station in cooperation with Farmer Cooperative Service, USDA, October 1963.

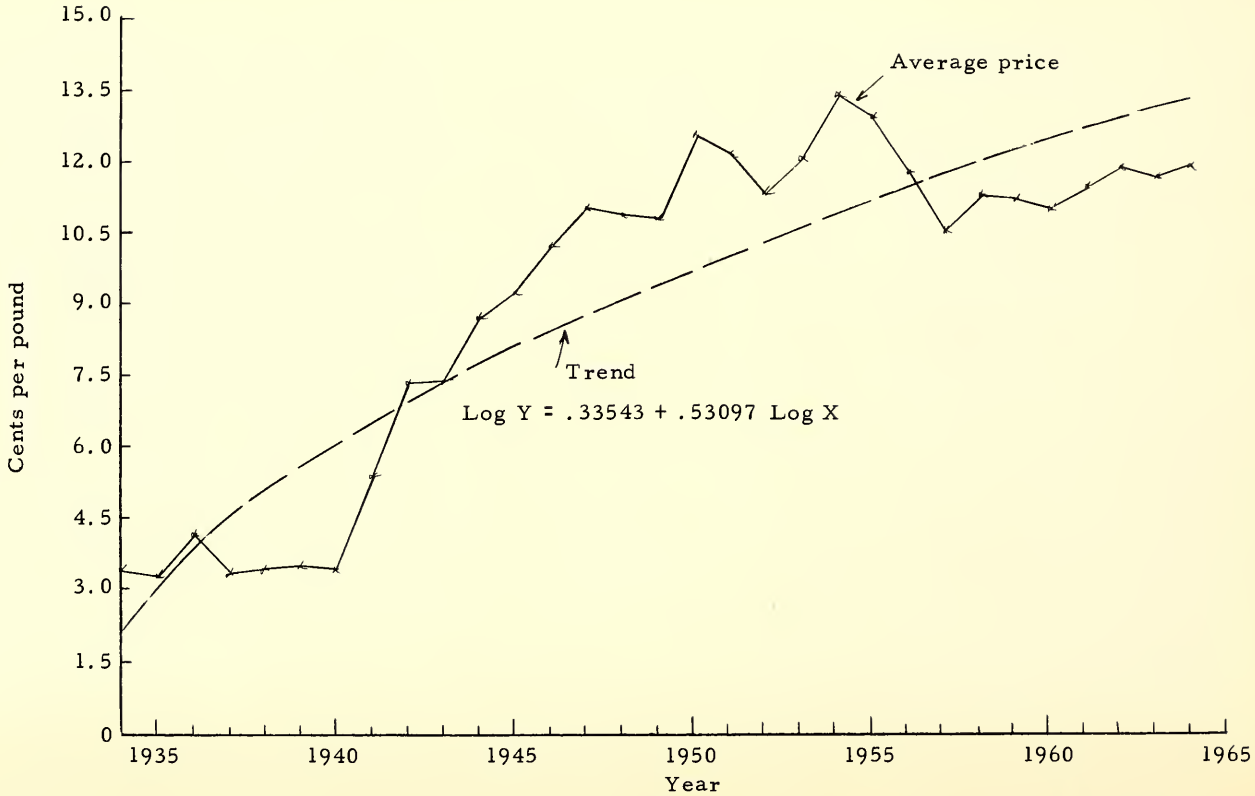

Figure 14. Average price received for peanuts, North Carolina, 1934-1964

inspector must determine the type and grade of each lot of peanuts on which a loan is made. The peanuts must be identified by a quota marketing card and meet specifications shown on the price support schedule.

In addition to selling through the Peanut Growers Cooperative Marketing Association, farmers may sell directly to receiving stations and processors. Refer to Figure 11 for location of different types of market outlets. In 1959, there were 46 market points with 113 receiving stations, 12 processor and 23 co-op market outlets.[13]

It is difficult to make specific projections as to price behavior for peanuts in the future because of the factors which can influence price. However, assuming there is no major change in the pattern of production and that retail prices of peanut products will remain at about the present level, it is reasonable to expect producer prices to continue near present levels. An increase in price at the farm level could come about as a result of recent and continuing increases in efficiency in the marketing process. This increase in efficiency is due mainly to the shift from bag to bulk handling which is a more practical and economical method of handling peanuts harvested with a combine.

The income potential of peanuts in North Carolina has been increased greatly by the rapid increase in efficiency of production. Improved varieties, better cultural practices and mechanized harvesting have contributed to higher yields and lower production costs per unit of output. Available technology has not been fully exploited so that average yields can be expected to continue to increase. Demand for North Carolina peanuts is strong and there are possibilities for some increase in demand. Even with the possibilities of increased production as a result of higher yields, producers of the Virginia type peanut are not likely to be faced with any serious surplus problem in the immediate future. In view of these considerations, peanut producers in the state are now in a rather favorable position. This crop can be expected to continue as an important source of farm income in the state.

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[13] E. Walton Jones and Richard A. King, Marketing Farmers' Stock Peanuts in the Virginia-North Carolina Area, Farmer Cooperative Service, USDA, and N. C. Agricultural Experiment Station cooperating, Marketing Research Report No. 595, April 1963.

Feed Grains

Crops generally referred to as feed grains include corn, oats, barley, grain sorghum and rye. Commercially they are not considered of major importance in the agricultural economy of the state from the standpoint of a direct source of cash income. On the other hand they are of vital importance to the expansion of livestock and poultry enterprises. The combined production of all five crops contributes a very small proportion of the total feed requirements in the state. Table 20 shows the production pattern for feed grains for selected years.

Table 20. Production pattern of feed grains, North Carolina, 1950-1963

Crop	Acres harvested				Total production (bus.)			
	1950	1955	1960	1963	1950	1955	1960	1963
	(thousands)							
Corn	2,163	1,973	1,750	1,435	71,379	67,082	84,000	78,925
Oats	356	460	237	150	11,685	15,180	8,176	4,650
Barley	59	62	62	64	892	1,652	2,108	2,176
Sorghum	23	92	84	53	690	2,576	3,128	2,279
Rye	17	24	18	18	200	324	288	315
Total	2,618	2,611	2,151	1,720	84,846	86,814	97,700	88,345

Total acres of the crops shown in Table 20 declined 34 percent between 1950 and 1963. As a result of higher yields total production of grain increased from about 2.2 million tons in 1950 to slightly over 2.6 million tons in 1960. Total production dropped to about 2.4 million tons in 1963 with about 20 percent fewer acres harvested than was reported in 1960. The average production for the four years shown was about 2.38 million tons per year. Corn, which accounted for the major portion of the total tonnage, showed a decline of 34 percent in acres harvested from 1950 to 1963. Each of these crops will be dealt with in more detail in the following sections.

Corn

Corn is grown extensively in all areas of the state with the heaviest concentration in the Tidewater and Coastal Plains areas. A total of 1.4 million acres was reported harvested for grain in 1964 which amounted to about 27 percent of the total cropland in the state reported in the U. S. Census of Agriculture, 1959. A considerable amount of corn is grown for other purposes, especially silage.

About 45 to 50 percent of total production is marketed depending upon annual production and amount fed on farms. Cash sales in 1963 amounted to only 42 percent of the estimated total value of production. From 1952 to 1962, cash receipts from corn averaged $29.5 million per year or about 4 percent of all crop sales. However, during this 11-year period there were some extreme variations ranging from $9.9 million in 1954 to $46.2 million in 1960. Estimated sales were up about $8.6 million in 1963 over 1962. The year-to-year variations resulted mainly from fluctuations in annual production, as influenced by acres and yields, proportion of the corn marketed and prices received.

Table 21 shows acres, yield and average price of corn from 1930 to 1964. There has been a continuing downward trend in acreage harvested for grain since 1939. The sharpest drop occurred in 1961 with the introduction of the feed grain program although there was an increase in 1963. Accompanying the decline in acres has been a decided upward trend in average yield per acre, particularly since 1954 (Figure 15). The increase in yield can be attributed mainly to more widespread adoption of higher levels of technology. Important factors are use of better cultural practices including fertilization, use of chemicals for control of weeds and grass and use of adapted hybrid seed. More than 95 percent of the total acres of corn are now planted with hybrid seed. Despite the general upward trend in yield, considerable variation has occurred between some years. Most of the variation is due to weather conditions.

The average price of corn has been very erratic over the period 1934-1964 (Figure 16). The deviations between periods of high and low prices are very large. However, the general trend has been downward since 1952.

For the crop years 1961-1963, consumption of corn in the state exceeded production by about 32 million bushels per year. There is a question as to whether it would be more economically advantageous to the economy of the state to reduce this deficit by increasing production or continue to import grain into the state. An increase in the production of corn would help facilitate expansion of the livestock and poultry enterprises. However, in appraising this situation the economic interests of both producers of corn and producers of livestock and poultry must be considered. One important factor is whether producers of corn have more profitable alternative uses for their resources. Another important consideration is the price of corn imported from other areas plus transportation cost as compared to the cost of producing corn in North Carolina.

Table 21. Acres harvested, yield and average price of corn, North Carolina, 1930-1964

Year	Acres harvested for grain	Yield per acre	Average price per bushel
	(1,000)	(bu.)	(dols.)
1930	2153	18.0	.80
1931	2266	19.0	.41
1932	2220	15.0	.54
1933	2320	18.0	.73
1934	2343	17.5	.86
1935	2417	19.0	.74
1936	2314	18.5	.96
1937	2284	19.5	.68
1938	2388	19.0	.64
1939	2414	21.1	.68
1940	2379	19.5	.72
1941	2339	22.0	.82
1942	2227	20.5	1.22
1943	2252	22.0	1.53
1944	2234	22.8	1.50
1945	2149	25.0	1.48
1946	2104	27.0	1.85
1947	2110	31.5	2.00
1948	2137	30.0	1.35
1949	2122	31.5	1.30
1950	2163	33.0	1.52
1951	2107	31.0	1.70
1952	2068	25.5	1.74
1953	2036	27.5	1.61
1954	1964	25.0	1.64
1955	1973	34.0	1.26
1956	1834	41.0	1.29
1957	1721	32.5	1.37
1958	1708	43.0	1.30
1959	1818	42.0	1.17
1960	1750	48.0	1.14
1961	1383	48.0	1.18
1962	1259	56.0	1.24
1963	1435	55.0	1.25
1964[a]	1406	59.0	1.25

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

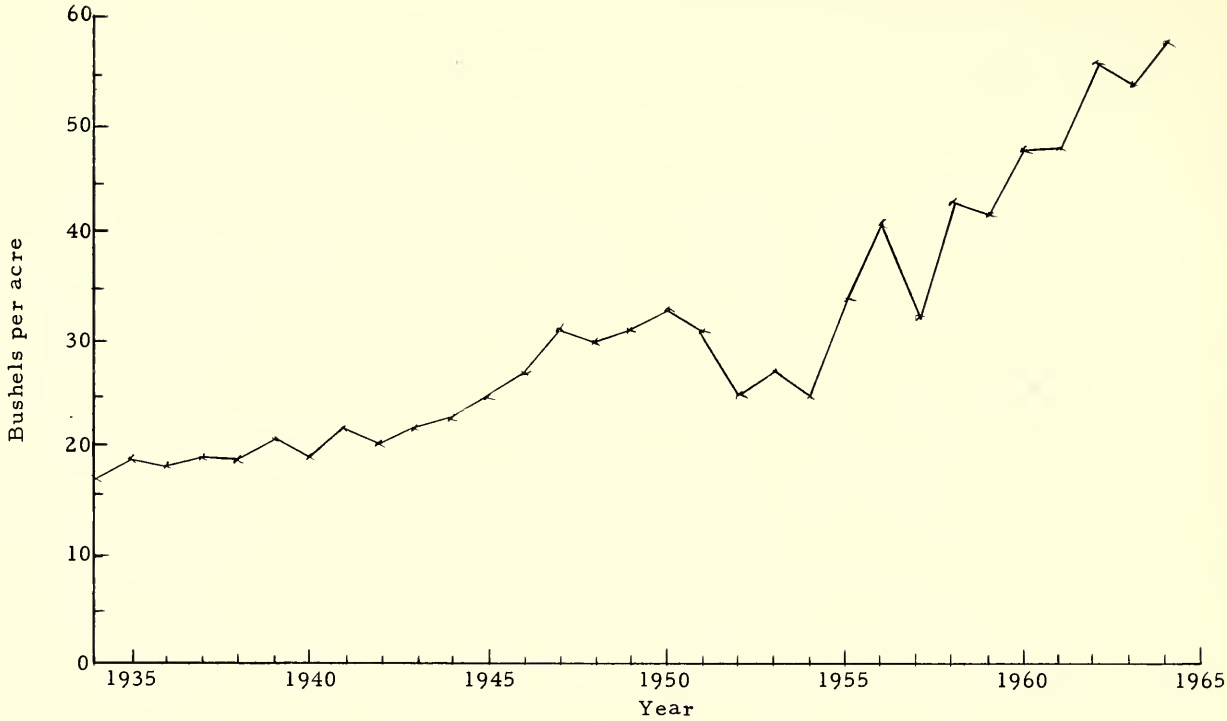

Figure 15. Average yield of corn, North Carolina, 1934-1964

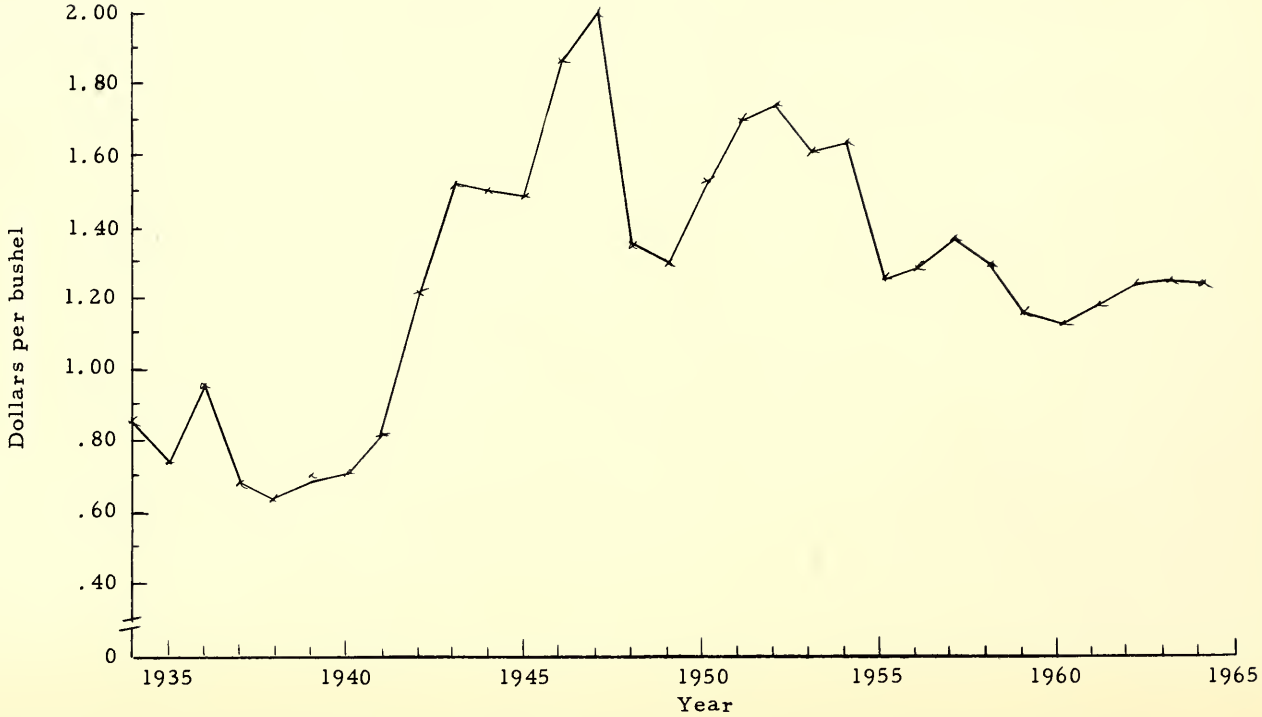

Figure 16. Average farm price of corn, North Carolina, 1934-1964

Oats

From the standpoint of acreage oats is the second most important feed grain crop in the state. The acres harvested, yield and average price are presented in Table 22. Acres harvested varied considerably between 1934 and 1964 with the highest peak occurring between 1954 and 1957 (Figure 17). This peak was followed by a rather sharp and continuing decline in acreage beginning in 1958. This decline could be due in part to a decrease in the relative profitableness of oats as compared to other enterprises. There have been some disease problems, and hard winter freezes also have affected yields. Another factor was the introduction of the feed grain program in 1961.

The trend in yields has been slightly upward but very erratic. Disease and weather conditions have tended to make farmers view the production of oats with some uncertainty.

The price of oats also has been an uncertain factor influencing the profitableness of producing oats. With the low price of oats small variations between years discourage expanding production. Also, the price has had a slight downward trend since the period of relatively high prices from 1944 to 1948.

Production of oats is primarily for use on the farm. Some oats are grown for use as hay and silage. Most of the oats sold off the farm remain in the state and are used in mixed feeds.

Barley

Barley is grown primarily in the Piedmont, often as a substitute for corn, and the larger proportion is used for feed on farms where it is produced.

The acres harvested, average yield and price are shown in Table 23. The acres used for barley are insignificant relative to total cropland. However, the acreage has been increasing, particularly in recent years.

Yields have tended to increase but with somewhat erratic variations between years. Weather is one of the major factors influencing yields. Extremely cold weather during late fall and winter or drought during the maturing stage can cause sharp drops in yields in any year when either or both of these conditions occur.

The price of barley has varied quite widely depending upon the year-to-year local and national supply-demand relationships. Following the relatively high prices which prevailed from 1944 to 1948, there has been a fairly sharp downward trend (Figure 18). With yields so variable, the decline in prices serves as a further deterrent toward increased production.

Table 22. Acres harvested, yield and average price for oats, North Carolina, 1930-1964

Year	Total acres harvested	Yield per acre	Average price per bushel
	(1,000)	(bu.)	(dols.)
1930	186	18.5	.65
1931	205	23.0	.38
1932	219	19.0	.36
1933	223	16.5	.56
1934	228	18.0	.65
1935	233	24.0	.55
1936	238	17.5	.64
1937	220	23.0	.58
1938	242	25.0	.43
1939	235	24.6	.47
1940	235	26.0	.49
1941	252	26.0	.57
1942	290	25.0	.65
1943	310	21.5	.93
1944	335	27.7	1.01
1945	375	27.5	.93
1946	390	33.0	1.05
1947	386	29.0	1.03
1948	270	29.0	1.03
1949	321	29.0	.80
1950	356	28.5	.90
1951	299	33.5	.89
1952	296	32.5	.93
1953	337	35.5	.83
1954	455	36.0	.81
1955	460	33.0	.76
1956	492	40.0	.70
1957	448	30.5	.69
1958	336	31.0	.81
1959	349	36.0	.68
1960	237	34.5	.79
1961	256	40.0	.68
1962	217	37.5	.74
1963	150	31.0	.78
1964[a]	146	42.0	.71

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

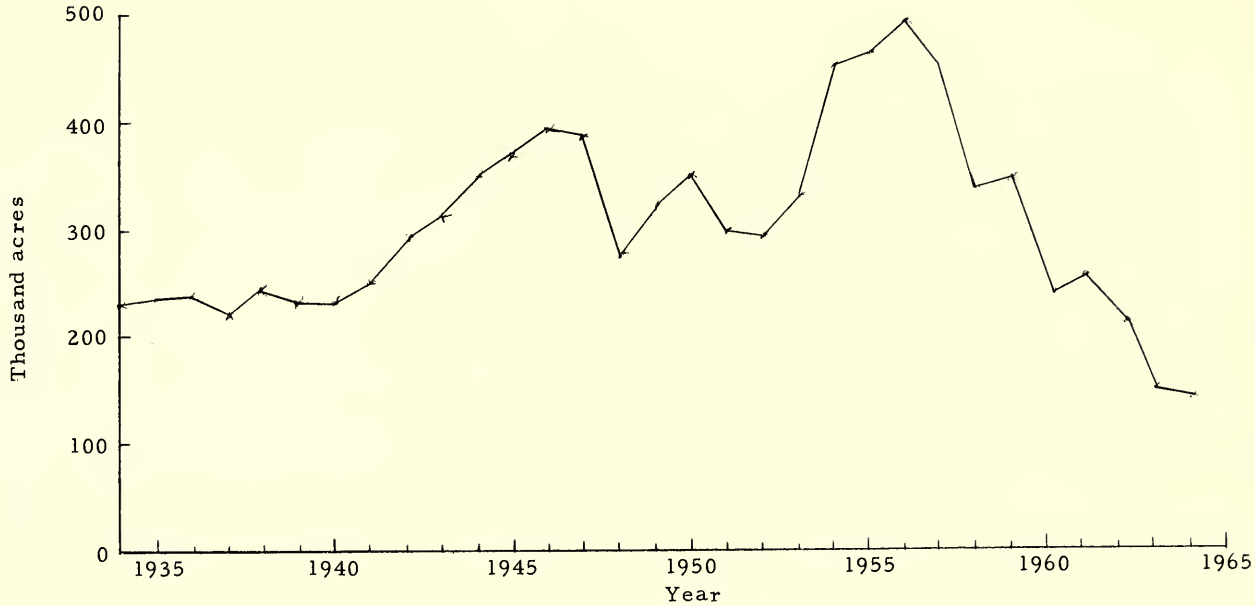

Figure 17. Acres of oats harvested, North Carolina, 1934-1964

Table 23. Acres harvested, yield and average price of barley, North Carolina, 1930-1964

Year	Total acres harvested	Yield per acre	Average price per bushel
	(1,000)	(bu.)	(dols.)
1930	23	17.5	1.04
1931	26	20.0	.60
1932	17	15.0	.51
1933	14	17.5	.79
1934	11	18.0	.82
1935	9	20.0	.77
1936	9	18.0	.89
1937	10	21.0	.86
1938	11	20.0	.69
1939	14	22.1	.72
1940	16	24.0	.74
1941	27	23.5	.81
1942	46	23.0	.93
1943	45	20.5	1.26
1944	45	26.8	1.42
1945	42	22.0	1.38
1946	33	28.5	1.61
1947	39	29.0	1.61
1948	32	24.5	1.65
1949	34	26.2	1.16
1950	35	25.5	1.32
1951	35	33.0	1.33
1952	46	30.5	1.34
1953	47	34.5	1.24
1954	61	31.5	1.13
1955	59	28.0	1.11
1956	62	37.0	1.04
1957	67	28.0	.99
1958	61	32.5	1.07
1959	71	36.0	.99
1960	62	34.0	1.02
1961	74	41.0	.91
1962	66	34.0	1.01
1963	64	34.0	1.01
1964[a]	72	40.0	.95

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

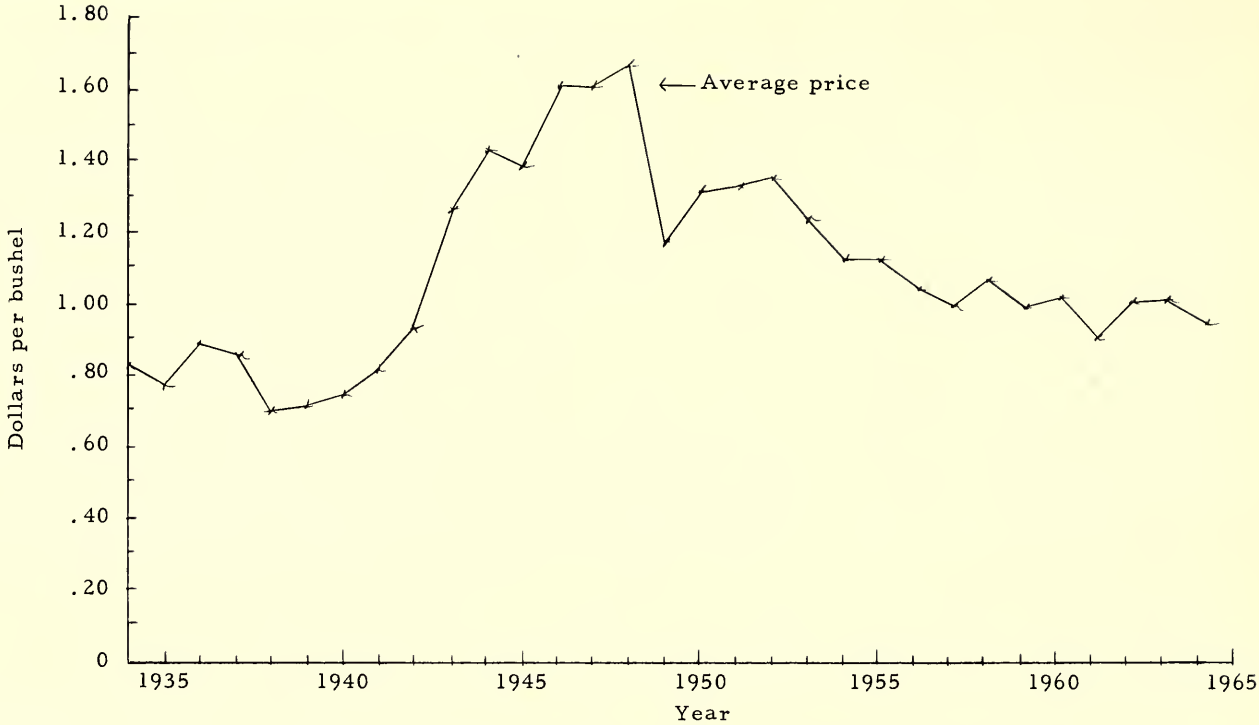

Figure 18. Average price of barley, North Carolina, 1934-1964

Rye

The acreage, yield and price of rye is shown in Table 24. This crop is not important as a feed grain in North Carolina. Although yields have increased some in recent years, they are low compared to oats and barley. Comparatively little rye is grown specifically for feed. It has been used fairly extensively as a cover crop and the demand for seed probably has exerted some influence upon price. However, the use of rye as a cover crop has decreased with the increased use of other types of sod crops.

The trend in acres harvested has been downward, reaching a low of 16,000 acres in 1962 as compared to 76,000 acres in 1934. Price also has declined in recent years. It is expected that rye will continue to be a relatively unimportant crop in the state, particularly from the standpoint of feed grain production.

Grain Sorghum

Grain sorghum, commonly referred to as milo, is a comparatively new crop in the state. Acres harvested, yield per acre and average price are shown in Table 25. Initially it was grown primarily in the southern piedmont. Expansion in the production of milo as a grain crop began at a time when the average yield of corn was low. It was considered a reasonably good substitute for corn and appeared to be more drought resistant than corn. Another advantage was that it could be harvested with a grain combine. Farmers in eastern North Carolina began growing some milo and total acres harvested in the state increased rapidly until 1958. One disadvantage was the problem of molding after harvest, particularly if the moisture content of the grain was high.

Yield of milo has increased but considerably less than the increase in yield of corn. The rapid development and widespread adoption of new technology in the production of corn greatly increased its advantage over milo from the standpoint of yield per acre and the acreage of milo was reduced. Although the acreage of milo was up some in 1963 and 1964, it does not appear that this crop is likely to contribute to any substantial reduction in the deficit feed grain situation in the state.

It is obvious that small grains are of only minor importance in helping to meet the increasing feed requirements in the state. On many farms the acreage is too small for economical use of certain items of equipment required unless such equipment can serve dual uses in connection with other crops. Perhaps almost as important as the grain produced is the value of small grains used in rotations with row crops. Frequently such crops as lespedeza are interplanted with small grains either for hay or seed. However,

Table 24. Acres harvested, yield and average price for rye, North Carolina, 1930-1964

Year	Total acres harvested	Yield per acre	Average price per bushel
	(1,000)	(bu.)	(dols.)
1930	51	8.0	1.17
1931	70	9.0	.69
1932	72	8.0	.61
1933	69	7.0	.94
1934	76	7.2	.97
1935	70	8.0	.91
1936	58	7.0	1.13
1937	57	8.5	1.06
1938	54	8.5	.85
1939	52	9.0	.93
1940	51	10.5	.92
1941	46	10.5	1.05
1942	42	10.0	1.18
1943	35	9.5	1.55
1944	38	11.5	1.80
1945	31	10.5	1.78
1946	22	12.5	2.35
1947	24	14.5	2.65
1948	22	13.0	2.29
1949	17	11.5	1.99
1950	17	12.0	2.19
1951	18	13.5	2.20
1952	18	14.0	2.41
1953	20	14.0	2.31
1954	23	13.0	2.08
1955	24	13.5	2.00
1956	26	15.5	1.78
1957	20	13.5	1.79
1958	21	14.0	1.98
1959	22	16.0	1.77
1960	18	16.0	1.66
1961	18	19.0	1.50
1962	16	15.0	1.74
1963	18	17.5	1.86
1964[a]	27	18.0	1.55

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 25. Acres harvested, yield per acre and average price, grain sorghum, North Carolina, 1948-1964

Year	Total acres harvested	Yield per acre	Average price per bushel
	(1,000)	(bu.)	(dols.)
1948	21	22	1.15
1949	15	25	1.19
1950	23	30	1.31
1951	33	30	1.43
1952	43	27	1.57
1953	59	24	1.28
1954	73	25	1.37
1955	92	28	1.09
1956	80	27	1.12
1957	89	26	1.22
1958	100	32	1.15
1959	86	31	1.08
1960	84	38	1.02
1961	55	40	1.06
1962	48	43	1.12
1963	53	43	1.12
1964[a]	68	45	1.02

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

practices used to obtain high yields of small grains usually result in low rates of production for the interplanted crops. Some farmers have adopted the practice of planting a second crop such as soybeans after small grains. Where conditions are favorable, this practice contributes to more effective utilization of land resources to increase production of other crops.

The Feed Grain Program, initiated in 1961, has had some effect upon grain production in the state. This program was designed to reduce the feed grain surplus which had reached a total of 85 million tons in October 1960. The immediate effect was a reduction in grain production in the state which meant a further increase in our grain deficit. Some gains have been made through increased yields of the major grain crops and some increase in acres harvested as a result of less participation in the program. However, in view of the growing feed needs in the state, the present feed grain situation with respect to the deficit is not likely to improve very much in the near future.

Wheat

Wheat is the most important small grain crop grown in the state from the standpoint of cash receipts. It is considered a commercial cash crop but its importance is relatively minor compared to the major cash crops, particularly tobacco, cotton and peanuts. Production is most heavily concentrated in the Piedmont areas and to a lesser extent in the upper Coastal Plains areas. Most of the crop is sold through market outlets within the state. Growers sell an average of about 72 percent of their production.

From 1952 through 1962, the average annual cash receipts from the sale of all small grains was about $16.9 million and accounted for about 2.1 percent of total receipts from all crop sales. During this 11-year period, cash receipts from wheat averaged about $10.6 million per year or 62.8 percent of all small grain sales, ranging from 49.2 percent in 1954 to 74.9 percent in 1961.

A wheat program was in effect for the years 1938 through 1941, 1950 and continuous since 1954. Provisions of programs influencing production and prices of wheat are changed frequently as a result of changing supply and market conditions.

Acreage, average yield and prices are shown in Table 26. In most cases the acres harvested have exceeded the allotted acreage. The general trend has been downward ranging from a high of 530,000 acres in 1936 to 204,000 acres in 1962 (Figure 19). Acres harvested increased in 1963 and 1964.

The average yield of wheat has shown a gradual upward trend (Figure 20). However, sharp variations occurred between some years, primarily because of unfavorable weather conditions. The variations in yields and acres resulted in wide variations in total production. For example, total production in 1962 was 57 percent less than in 1961.

The general trend in price showed a sharp upward movement from 1940 to 1947. However, following the high price peak of 1946-48, the trend has been downward (Figure 21).

The volume of production in the state relative to total U. S. production is too negligible to exert any influence on the overall price level of wheat. Support prices tend to establish a floor for prices farmers receive. The domestic and foreign demand in relation to supply are the price-making forces which determine the ceiling on wheat prices.

Large surpluses have accumulated which result in serious disposal problems, especially with regard to competition of U. S. production in the world markets. Continued restrictions on

Table 26. Acreage, average yield and price for wheat, North Carolina, 1930-1964

Year	Allotted acres	Acres harvested	Yield per acre	Average price per bushel	Loan rate per bushel	Percent parity support
		(1,000)	(bu.)	(dols.)	(dols.)	(percent)
1930		265	10.8	1.08		
1931		358	13.0	.72		
1932		422	9.5	.68		
1933		443	9.5	1.03		
1934		496	9.9	1.06		
1935		520	11.3	1.00		
1936		530	9.8	1.16		
1937		493	11.8	1.16		
1938	413,024	480	12.5	.82		
1939	363,117	430	12.8	.91		
1940	397,894	443	15.0	.94		
1941	400,512	474	15.5	1.09		
1942	364,743	517	15.5	1.23		
1943	378,128	465	12.5	1.58		
1944		516	16.5	1.66		
1945		408	14.5	1.70		
1946		371	17.0	2.24		
1947		467	17.5	2.39		
1948		374	16.0	2.28		
1949		400	13.8	1.99	2.19	90
1950	468,563	356	15.0	2.17	2.23	90
1951	478,108	392	23.0	2.10	2.36	90
1952		408	21.0	2.04	2.39	
1953		404	20.0	1.93	2.40	90
1954	320,387	343	21.5	2.11	2.40	90
1955	285,579	329	21.5	1.99	2.28	82.5
1956	282,322	368	25.5	1.95	2.21	82.5
1957	283,993	364	19.0	1.92	2.21	79.7
1958	282,567	306	23.5	1.95	2.03	75
1959	293,766	404	23.5	1.77	2.00	75
1960	295,714	327	23.5	1.79	1.97	75
1961	292,558	392	29.0	1.75	1.97	75
1962	259,682	204	24.0	1.93	1.97	75
1963	278,876	226	26.5	1.86	1.82	82
1964[a]	244,347	276	28.0	1.35	-	-

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues, and information provided by the state office, ASCS, USDA.

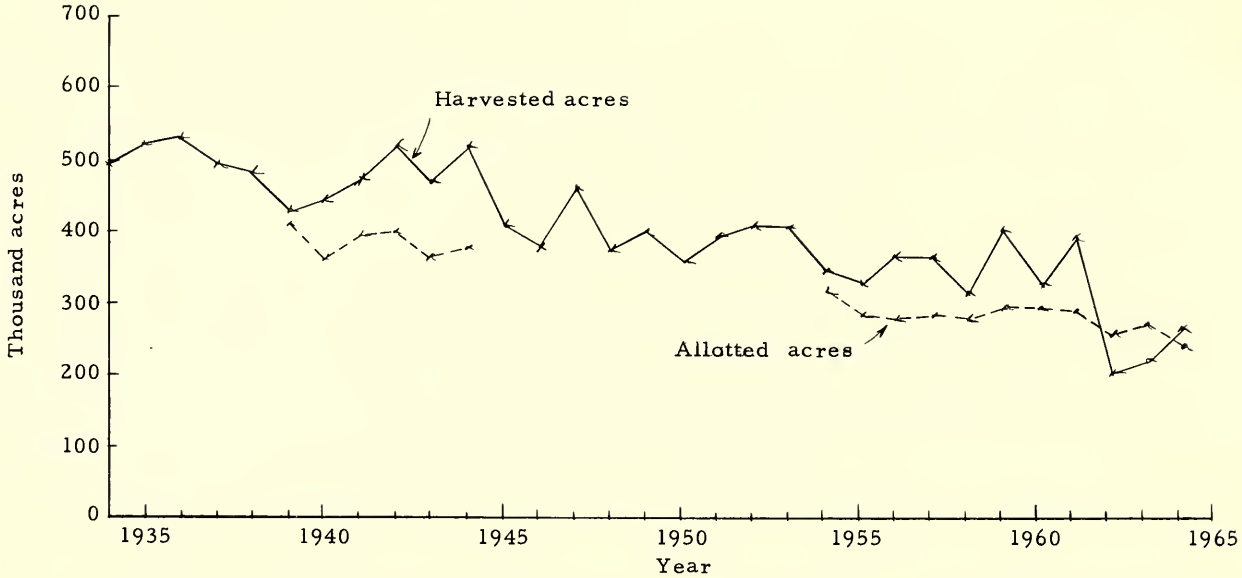

Figure 19. Acres of wheat harvested compared with allotted acreage, North Carolina, 1934-1964

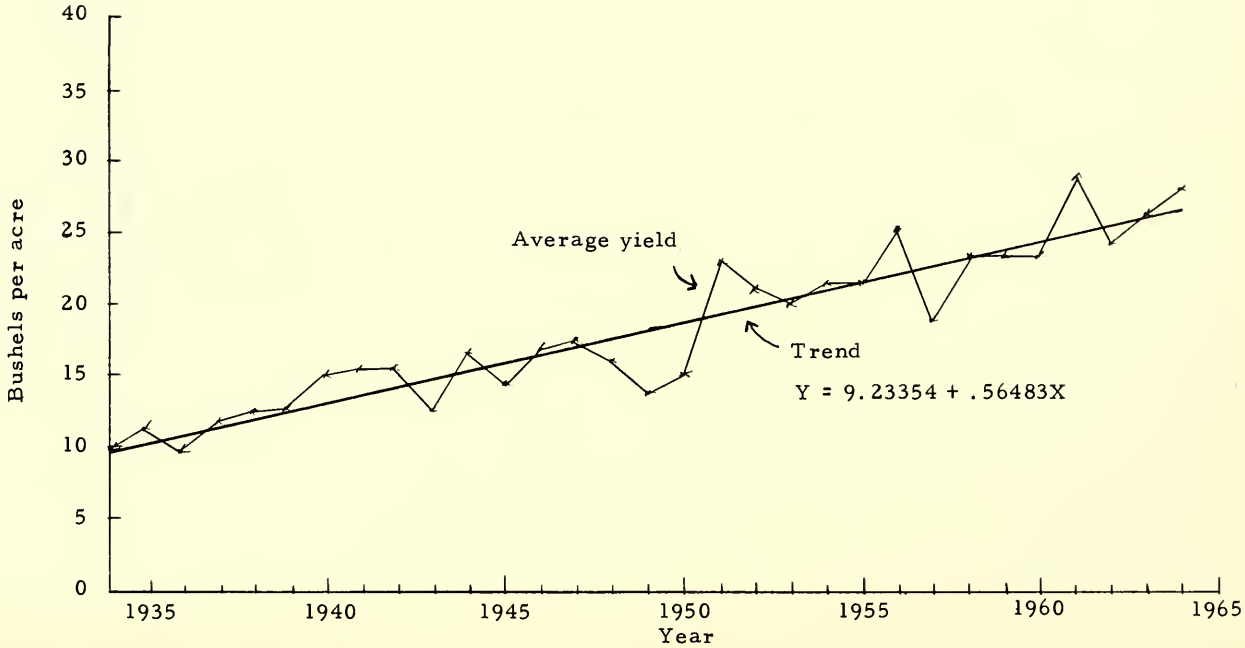

Figure 20. Average yield per acre for wheat, North Carolina, 1934-1964

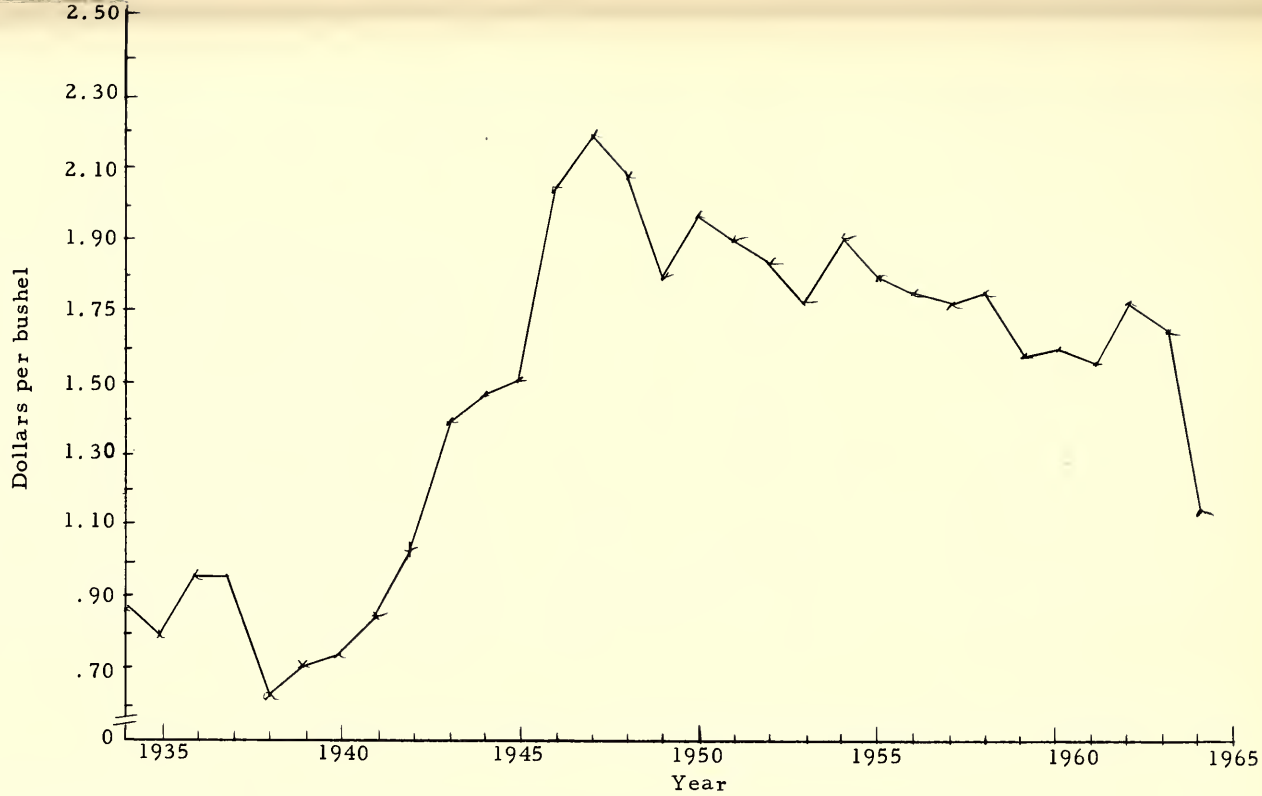

Figure 21. Average farm price for wheat, North Carolina, 1934-1964

production and negotiations for a more favorable foreign trade position appear necessary to curtail a continued buildup of surplus stocks in the United States. Commercial wheat producers in North Carolina are affected directly by whatever programs and policies are in effect at the national level. Under prevailing conditions wheat is expected to continue to be of only minor importance in the total agricultural economy of the state. The future importance of wheat as a commercial cash crop in the state will depend largely upon its relative profitableness compared to other enterprises. Also, the acreage planted will be influenced by the kind of program in effect and the extent to which farmers participate.

Soybeans

Soybeans are grown to some extent throughout the state. However, the heaviest concentration of production is found in the Coastal Plain area. Based upon the total acres of cropland in the state reported in the U. S. Census of Agriculture, 1959, soybeans occupy about 7 percent of the cropland area of the state.

Soybeans have become an increasingly important commercial crop both from the standpoint of acres harvested and cash receipts from sales. From 1952 to 1962, total cash receipts amounted to an average of $18.1 million per year or 2.5 percent of total crop sales. The largest increase during this period occurred from 1956 to 1963 when producers received about $36.7 million from sale of this crop.

Acreage harvested, average yield and price are presented in Table 27. Acres harvested have continued to increase very sharply (Figure 22). Two factors have contributed to the growing importance of this crop -- an increase in the relative profitableness of soybeans compared to other crops and the necessity of diverting resources to other enterprises on farms where allotments of acreage for crops under control programs have been reduced. Also, important is the fact that areas of heavy concentration in production of both corn and soybeans tend to coincide very closely. Adding or increasing the acreage of soybeans helps to provide a better system of crop rotation for these crops.

The yield per acre of soybeans has increased very noticeably, particularly since 1943 (Figure 23). Higher yielding varieties with less shattering characteristics are being planted. Farmers in general are using higher levels of production practices and better methods of harvesting and handling. The increased production efficiency has helped to reduce cost per unit of output and increase net returns to producers.

Table 27. Acreage, yield and price for soybeans harvested for beans, North Carolina, 1930-1964

Year	Acres harvested	Average yield per acre	Average price per bushel
	(1,000)	(bu.)	(dols.)
1930	128	10.5	1.63
1931	134	13.5	.73
1932	115	10.0	.57
1933	108	9.5	1.26
1934	112	10.5	1.19
1935	115	12.5	.90
1936	144	12.0	1.34
1937	148	12.0	.99
1938	162	11.5	.77
1939	160	11.0	.94
1940	190	12.0	.83
1941	218	10.0	1.61
1942	268	13.0	1.64
1943	257	9.0	1.88
1944	201	10.5	2.08
1945	216	12.5	2.20
1946	212	13.5	2.71
1947	233	15.0	3.00
1948	264	13.5	2.21
1949	264	15.0	1.93
1950	297	16.0	2.47
1951	309	17.0	2.59
1952	286	17.0	2.59
1953	258	16.0	2.57
1954	289	17.0	2.66
1955	327	15.5	2.13
1956	416	21.5	2.09
1957	420	20.0	2.06
1958	428	23.0	1.97
1959	437	21.5	2.09
1960	545	22.5	2.01
1961	568	23.0	2.26
1962	558	22.0	2.32
1963	608	23.5	2.66
1964[a]	638	25.0	2.60

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

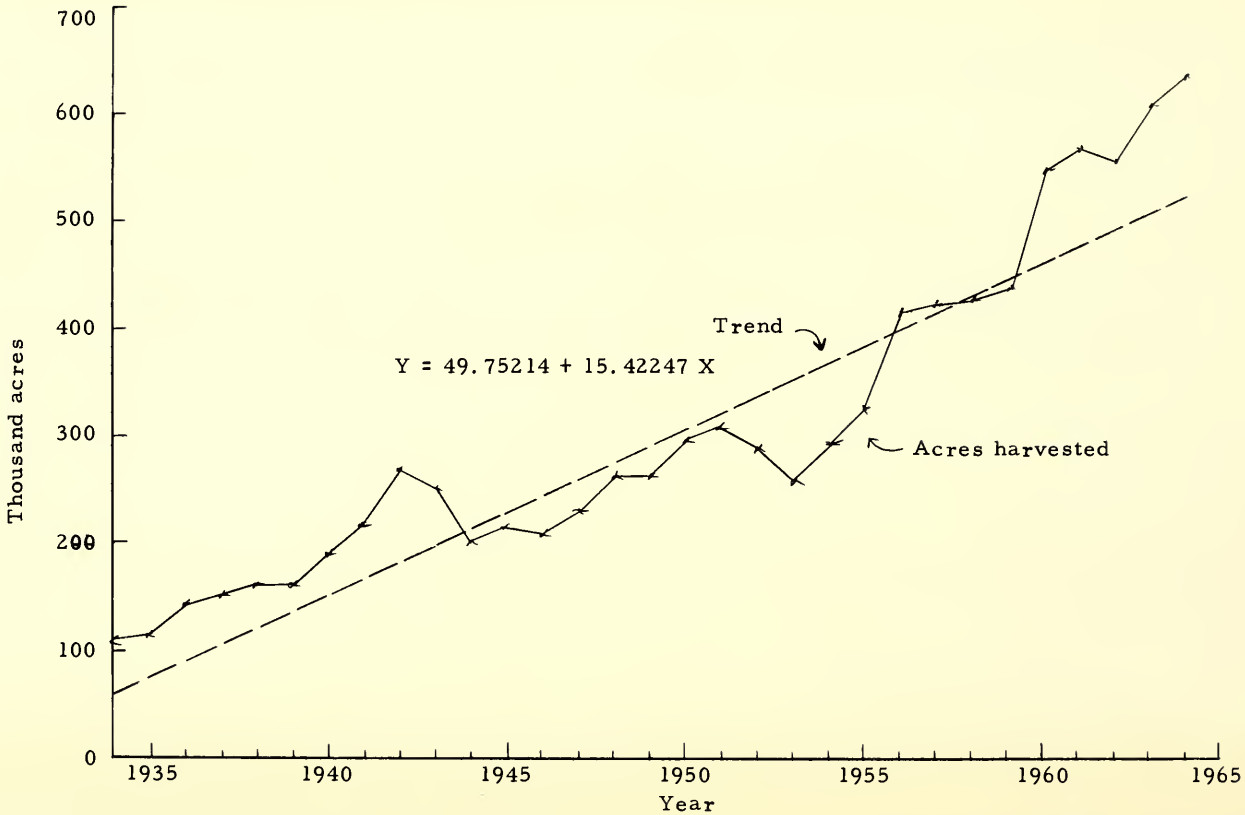

Figure 22. Acres of soybeans harvested, North Carolina, 1934-1964

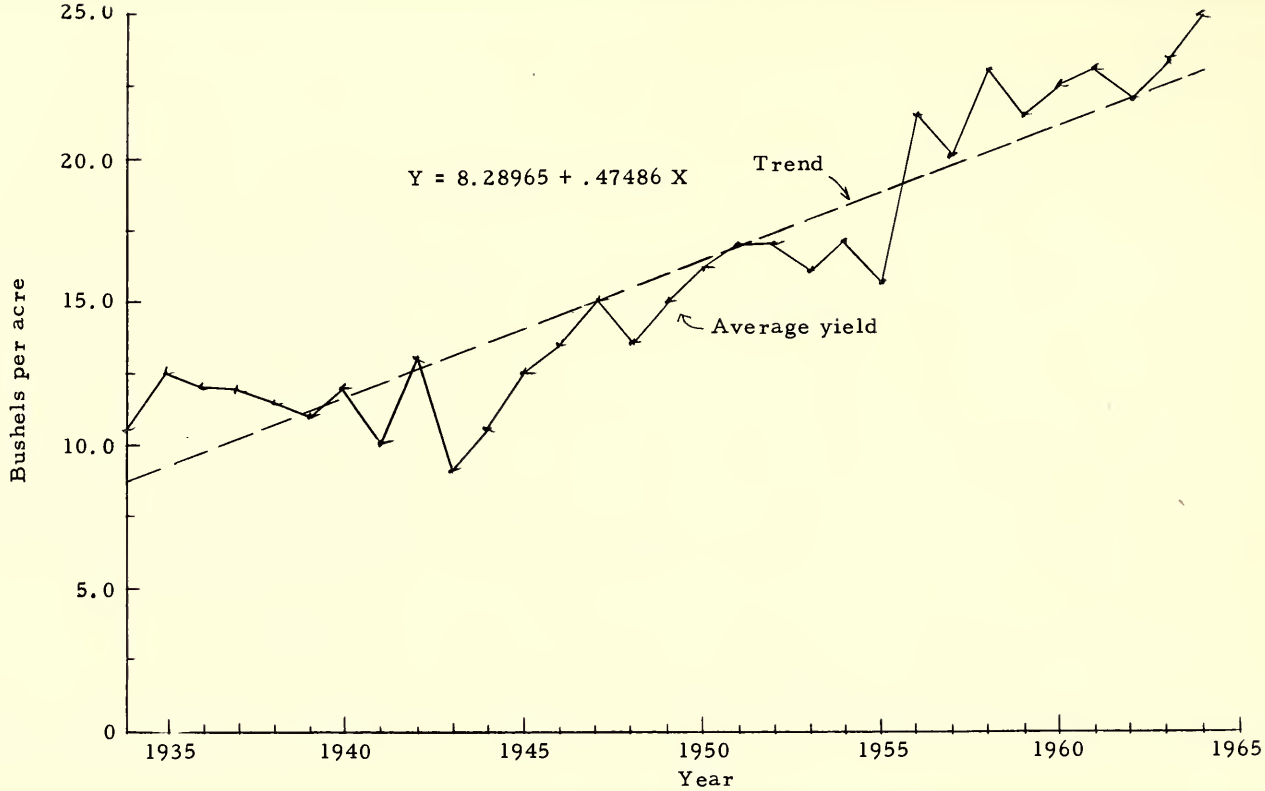

Figure 23. Average yield for soybeans, North Carolina, 1934-1964

Prices of soybeans have shown some extreme variations during the period 1934-64 (Figure 24). However, these variations cannot be associated directly with production in this state. Even though production has been expanding and probably will continue to increase, the output in North Carolina accounts for only a small proportion of total production in the United States.

There are ample market facilities in the state for handling soybeans. However, a large proportion of the crop is shipped out of the state. The demand for soybean products, especially meal for mixed feeds, has been increasing on both the domestic and export markets. If present trends continue, soybeans will continue to be an important crop in the state and particularly in the eastern part of the state.

Irish Potatoes

Irish potatoes are grown primarily in type-of-farming areas 1 and 11 for commercial purposes. Irish potatoes grown in the Northern Tidewater area are marketed generally for table use. Some of the potatoes produced in the Northern Mountain area are sold as seed potatoes.

Although this crop is an important source of income in the areas of concentrated production, it is of only minor importance in total cash farm receipts for the state. From 1952 to 1962, the average total cash receipts from Irish potatoes were about $6 million per year. However, income from this crop has been quite variable during this period. For example, receipts in 1956 were about $9 million compared to about $4 million in 1957. This major difference was due mainly to extreme variation in price for the two years. Estimated sales in 1963 were about $4.6 million compared to $6.3 million in 1962.

Acres harvested, yield and average price are presented in Table 28. The acres harvested have declined sharply since 1943 when the largest acreage on record was reported (110,000 acres). Only 21,300 acres were harvested in 1963 and a further reduction occurred in 1964 (Figure 25).

Yield per acre, although somewhat variable from year to year, has shown a slight upward trend (Figure 26). This increase has compensated to some extent for the decline in acreage.

Prices have been the most variable factor affecting annual income from Irish potatoes (Figure 27). Production in North Carolina is only a very small fraction of total production in the United States. Competition from other producing areas such as

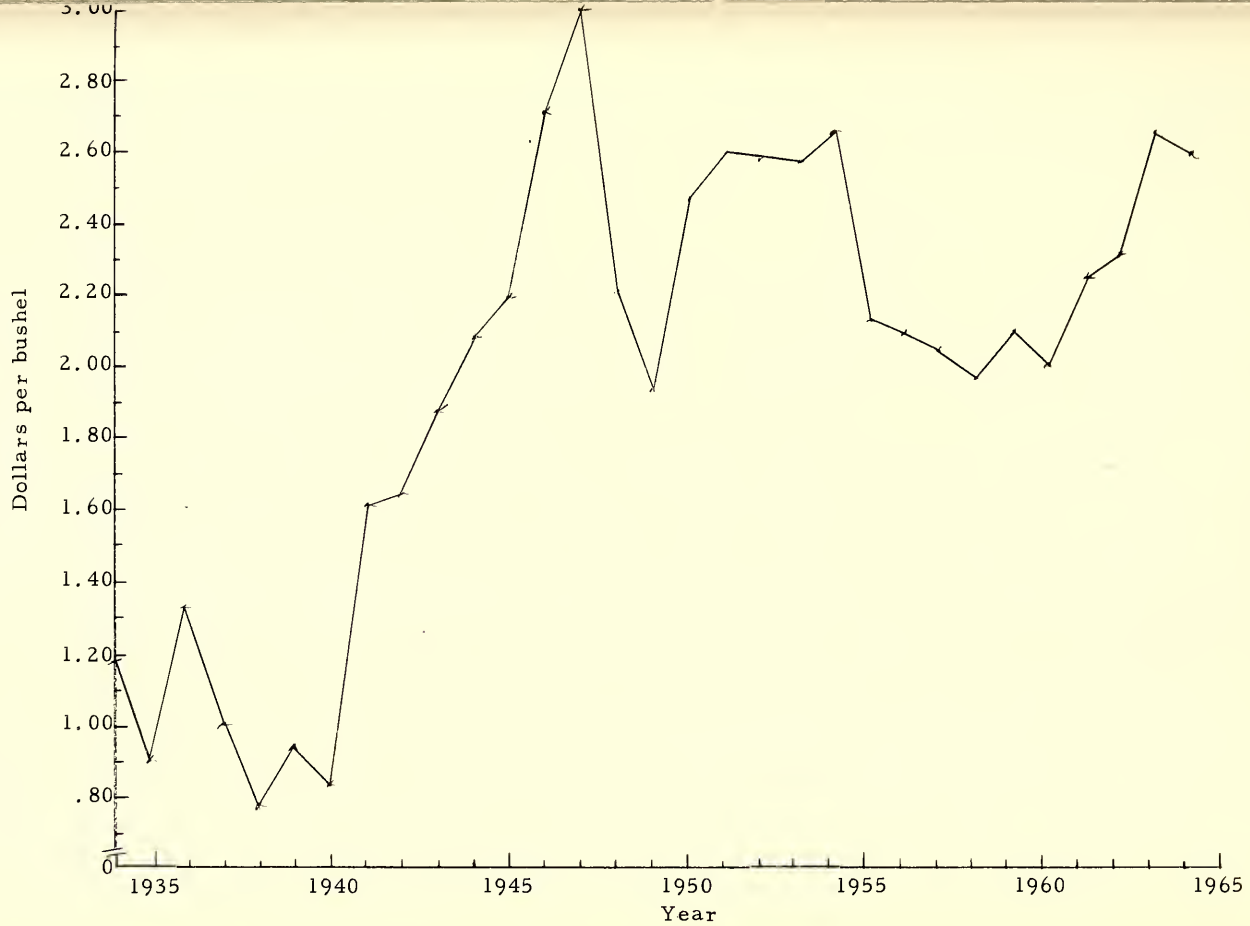

Figure 24. Average price of soybeans, North Carolina, 1934-1964

Table 28. Acreage harvested, yield and average price for Irish potatoes, North Carolina, 1930-1964

Year	Acres harvested[a]	Average yield per acre	Average price received
		(bu.)	(dols.)
1930	80,000	95	1.29
1931	88,000	103	.52
1932	76,000	94	.64
1933	83,000	92	.78
1934	94,000	115	.50
1935	85,000	102	.58
1936	76,000	75	1.71
1937	91,000	99	.61
1938	79,000	110	.65
1939	82,000	100	.68
1940	77,000	108	.61
1941	84,000	83	.77
1942	92,000	103	1.04
1943	110,000	100	1.37
1944	86,000	87	1.44
1945	70,000	125	1.72
1946	82,000	158	1.20
1947	66,000	134	1.59
1948	70,000	151	1.61
1949	61,000	138	1.35
1950	62,000	167	.79
1951	44,000	145	1.31
1952	42,000	126	2.49
1953	44,000	135	.92
1954	36,500	150	1.48
1955[b]	37,000	155	1.26
1956	37,000	150	2.44
1957	37,600	152	1.01
1958	35,900	175	.95
1959	32,900	183	1.85
1960	28,500	217	1.23
1961	27,700	213	1.17
1962	22,700	217	1.66
1963	21,300	243	1.14
1964[c]	19,900	192	2.61

[a]All potatoes - late spring, early summer and late summer.

[b]Beginning in 1955 yield and prices were reported on cwt. basis which have been converted to bushel equivalent basis at 60 pounds per bushel.

[c]Preliminary.

Source: Potatoes, Statistical Bulletin No. 122, March, 1953, BAE, USDA; N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

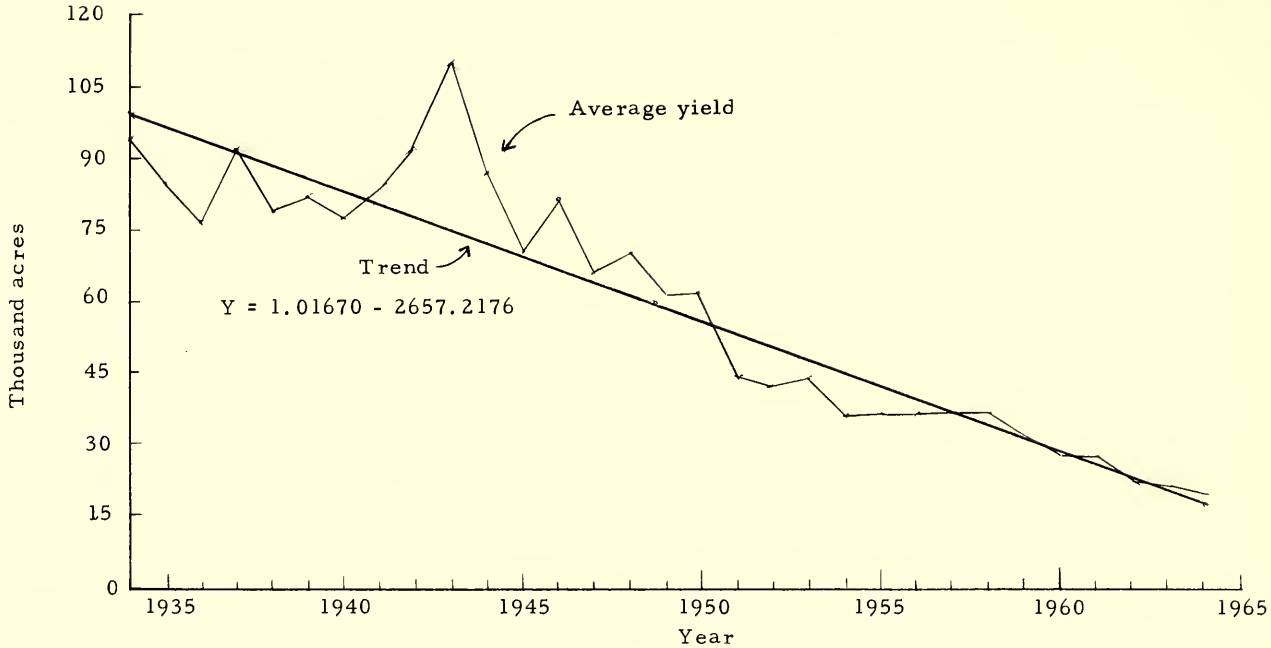

Figure 25. Acres of Irish potatoes harvested, North Carolina, 1934-1964

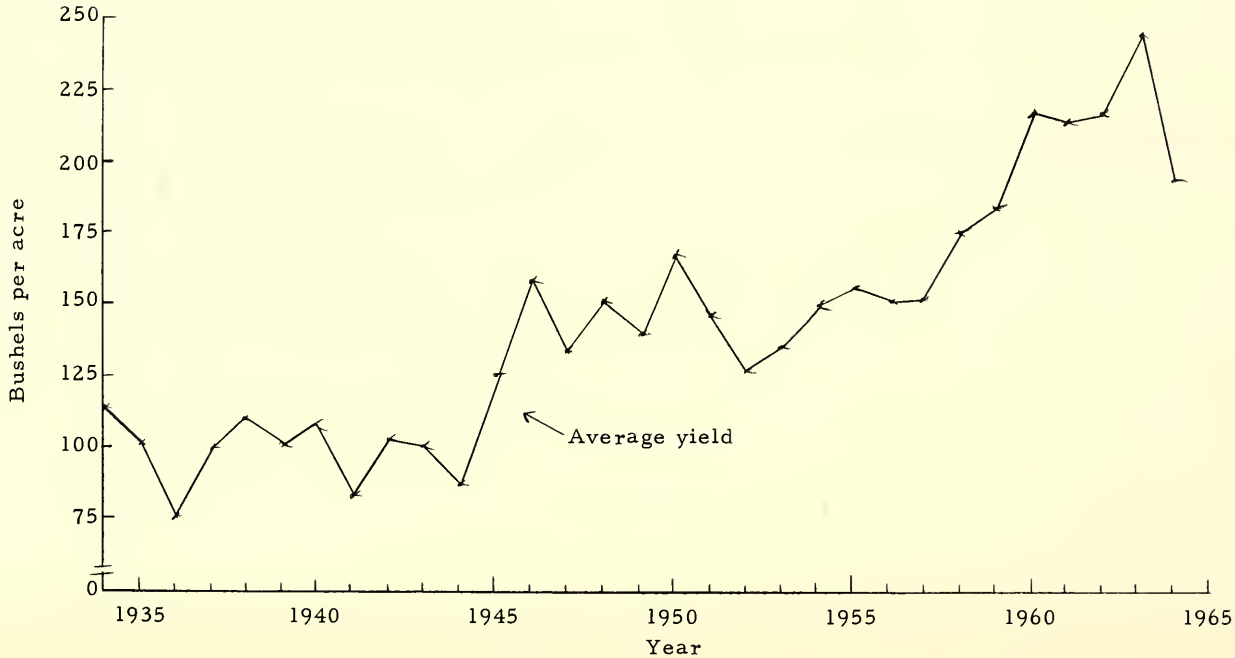

Figure 26. Average yield per acre for Irish potatoes, North Carolina, 1934-1964

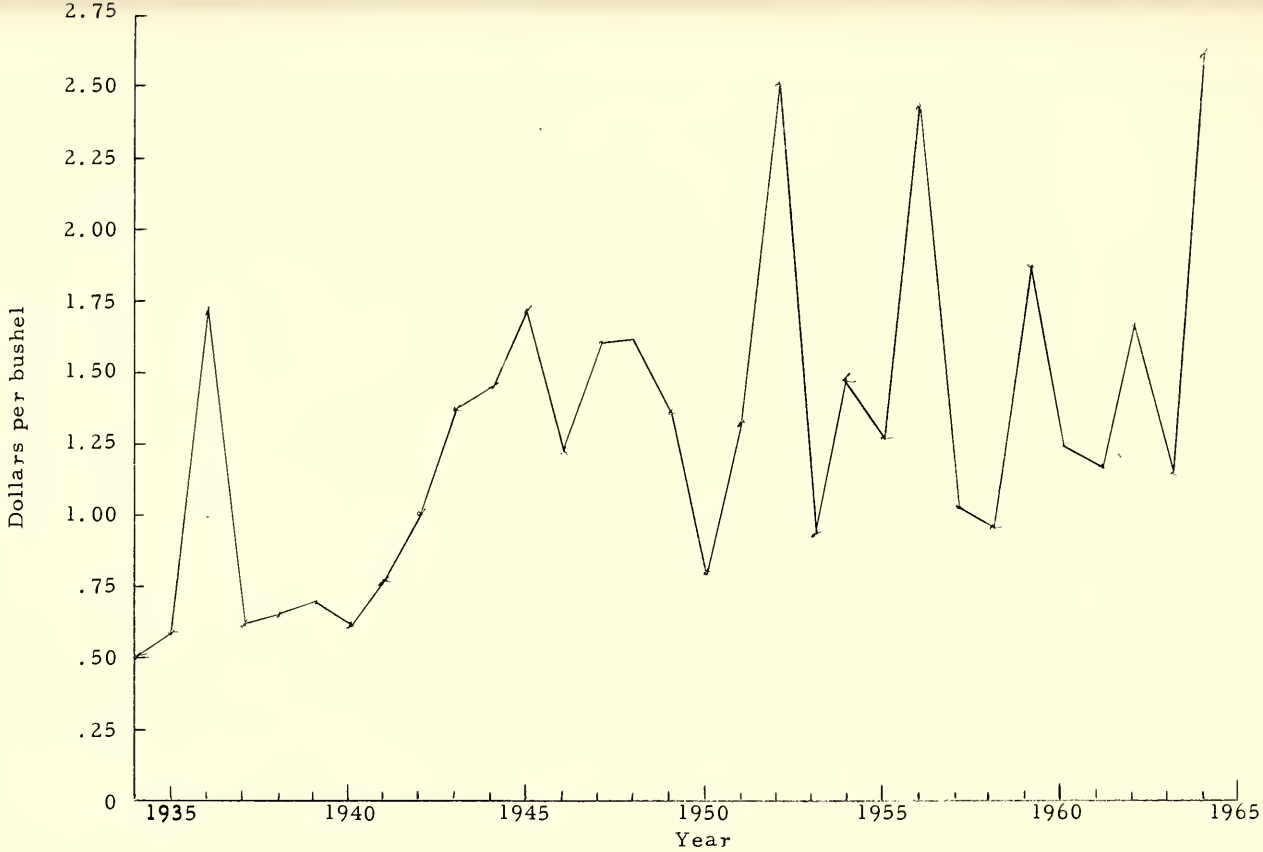

Figure 27. Average farm price for Irish potatoes, North Carolina, 1934-1964

California, Arizona and all of the southern states except Kentucky, Tennessee and Florida is the major factor influencing prices received by producers in North Carolina. Producers in the state face unfavorable growing conditions. This results in a competitive disadvantage quality-wise and price-wise.

Sweet Potatoes

Although grown throughout the state, sweet potatoes are grown most extensively in the Upper Coastal Plains counties. The disposition of the crop is made through green, cured and processing market outlets. More favorable returns usually would be expected by moving a larger proportion of the crop through channels involving curing and storing. Producers who choose to cure and store potatoes should consider the added cost of curing and shrinkage (about 16 percent) in relation to the price differential between cured and green potatoes.

Acres harvested, average yield and price are presented in Table 29. There has been a very noticeable decline in acres harvested since 1934 (Figure 28). Only minor variations between years have occurred since 1953 but the trend has continued steadily downward. This decline has been due, in part, to the voluntary efforts of producers to keep supply in reasonable balance with demand in available markets.

Yields fluctuated very little until recent years (Figure 29). From 1944 to 1955 the average yield was almost 60 cwt. per acre with only slight variations from this average. However, yields began increasing in 1955 and have continued to increase at a very rapid rate. The higher yields have offset to some extent the decline in acreage.

The general trend in prices has been slightly upward (Figure 30). However, the upward swing ended in 1952. There was a sharp drop in 1953 and prices have remained at a slightly lower level since then with an average of about $4.40 per cwt. Prices received for North Carolina potatoes are influenced more by the national market than by production in the state since North Carolina accounts for only about 15 percent of total production in the United States (average, 1958-62). The higher level of prices prevailing in the state since 1943 is due, in part, to an increase in the proportion of the crop which is cured and stored before moving into consumer channels.

Generally on most farms where produced, sweet potatoes are of secondary importance to other cash crops because of the high labor requirements. However, they are a good source of income on farms where efficient production practices are used. Total cash receipts from sweet potatoes in the state averaged about $5 million per year

Table 29. Acreage harvested, yield and average price for sweet potatoes, North Carolina, 1930-1964

Year	Acres harvested	Average yield per acre	Average price per cwt.
	(1,000)	(cwt.)	(dols.)
1930	79	50	1.73
1931	92	45	1.15
1932	101	47	.85
1933	95	51	1.13
1934	96	57	1.25
1935	90	55	1.27
1936	84	50	1.45
1937	82	53	1.35
1938	81	59	1.13
1939	77	63	1.22
1940	73	53	1.38
1941	82	47	1.71
1942	79	63	2.11
1943	80	53	3.78
1944	74	59	3.51
1945	60	58	3.98
1946	56	63	4.16
1947	55	60	4.02
1948	46	60	4.22
1949	55	60	3.91
1950	62	60	3.56
1951	37	55	5.71
1952	38	60	6.24
1953	46	60	4.56
1954	41	57	5.04
1955	40	60	4.26
1956	36	66	4.54
1957	39	70	4.43
1958	31	75	4.67
1959	31	80	3.76
1960	24	100	4.37
1961	22	110	4.61
1962	27	130	3.89
1963	21	130	4.10
1964[a]	19	135	4.80

[a]Preliminary.

Source: Sweet potatoes Statistical Bulletin No. 237, AMS, USDA, Sept. 1958; Statistical Bulletin No. 291, Statistical Reporting Service, USDA, August 1961; N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

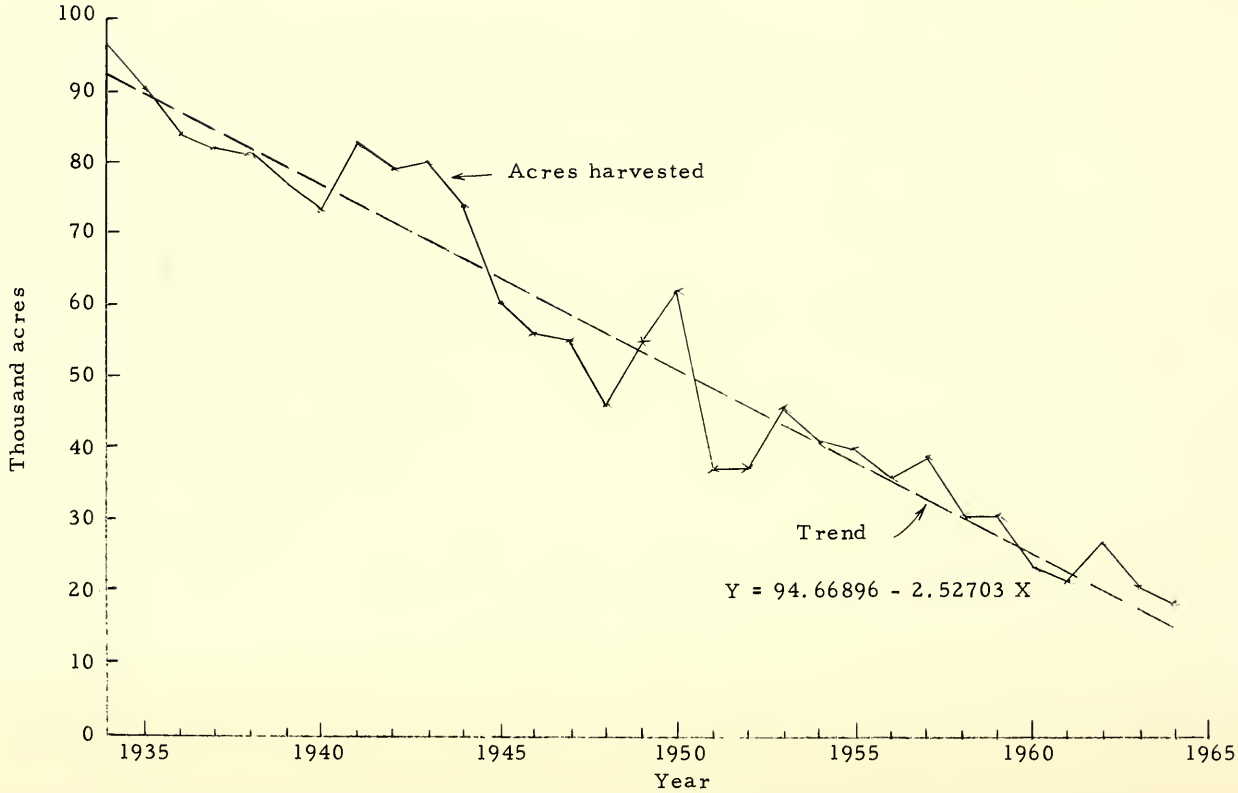

Figure 28. Acreage of sweet potatoes harvested, North Carolina, 1934-1964

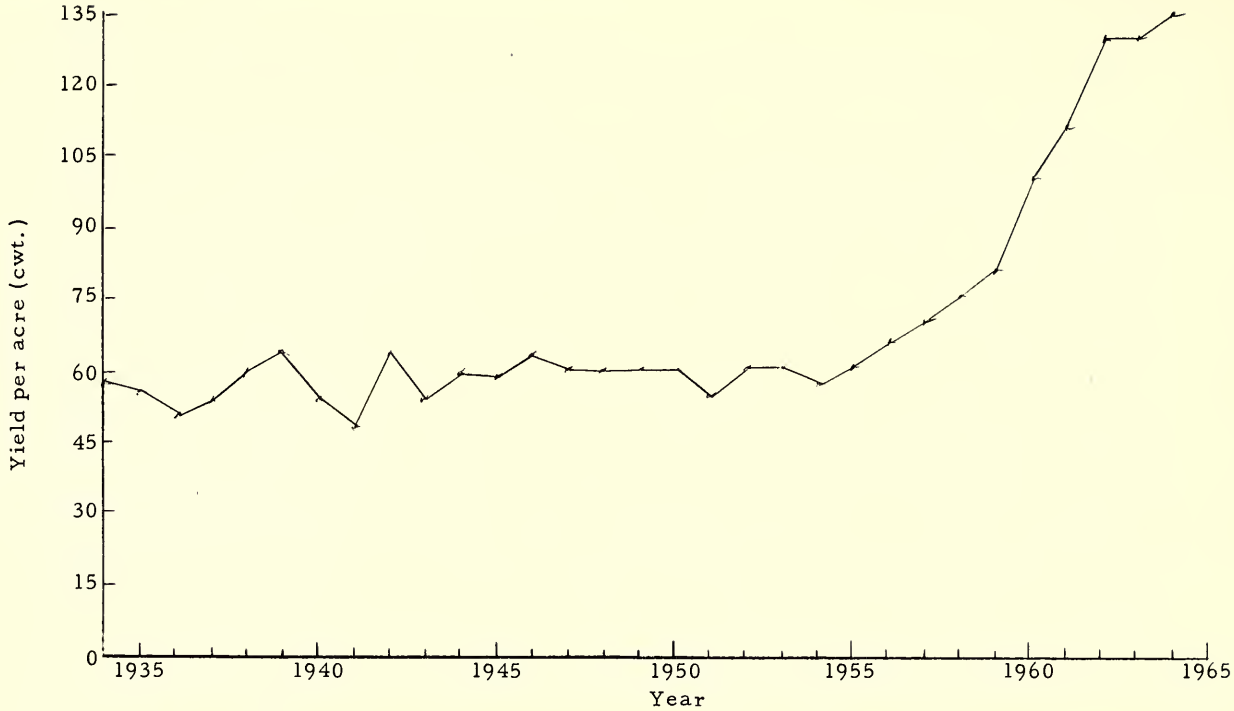

Figure 29. Average yield per acre for sweet potatoes, North Carolina, 1934-1964

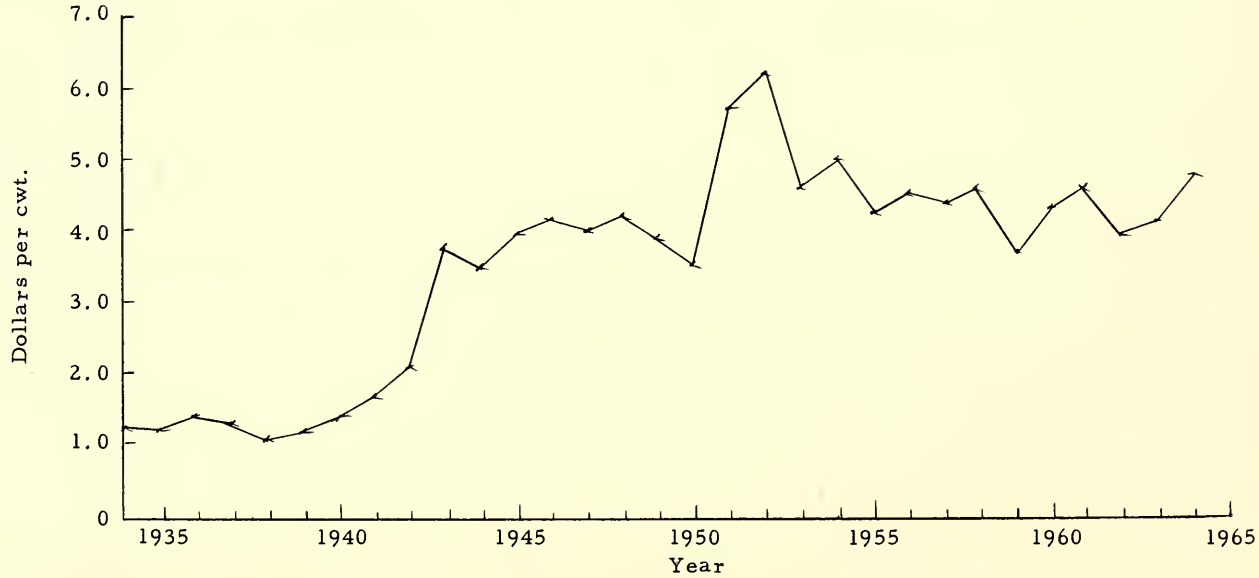

Figure 30. Average price of sweet potatoes, North Carolina, 1934-1964

for the period 1952-1962. The range was from $2.9 million in 1956 to about $7.7 million in 1962 and 1963.

Sweet potatoes offer a good opportunity on some farms for supplementing the loss of income from tobacco provided the farmer has access to an adequate market outlet. As indicated, acreage has continued to decline but yields have increased sharply in recent years. In 1963 the acreage harvested dropped to 21,000 acres compared to an average of 27,000 acres for the period 1958-1962. It has been suggested that the acreage might be increased by 3,000 acres for fresh market and an additional 3,000 acres for processing. If we assume the same average yields and price as prevailed during the period 1958-62, this could mean an addition of over $2.5 million gross cash farm income in the state. However, such an increase would have to be gradual.

Realization of this potential is contingent upon producers adapting production to the existing market structure including the diverse demand for sweet potatoes in both the fresh and processing market outlets. There is an excess capacity for processing sweet potatoes in the state and some progress is being made in expanding fresh market outlets. However, any sizeable increase in production in the immediate future likely would have some adverse effect upon prices in the state. Competition from other producing areas can be met only by a high quality product and orderly marketing which can be accomplished most effectively by curing and storing on the farm where facilities are available or through commercial firms.

North Carolina will probably capture a larger share of the national production during the next five years barring unexpected production problems. However, it will be necessary for the industry to invest in promotional work for market expansion and to exercise greater control over quality and sales.

Horticultural Crops

As individual crops, vegetables grown in North Carolina are comparatively insignificant in their impact upon the total economy of the state. From 1952 to 1962, total receipts from the sale of truck crops, excluding Irish and sweet potatoes, averaged about $12.1 million ranging from about $9.0 million in 1955 to about $16.9 million in 1962. The estimated sales in 1963 were about $19.0 million.

A summary of the ten major crops listed in Table 30 shows an average of 55,310 acres harvested per year over the period 1940-1963. Snap beans, watermelons, cabbage and cucumbers for fresh market accounted for the major portion of the acres in these crops. The acreage of most of these crops has declined in recent years.

Table 30. Summary of acres harvested, major horticultural crops, North Carolina, 1940-1963

Crop	Average acres harvested per year	Percent of total[a]
Snap beans	12,723	23.0
Lima beans	1,629	2.9
Cucumbers (fresh market)	5,200	9.4
Cabbage	8,838	16.0
Lettuce	1,175	2.1
Green peppers	4,250	7.7
Tomatoes	2,937	5.3
Cantaloupes	4,500	8.1
Watermelons	11,458	20.7
Strawberries	2,600	4.7

[a]Based upon total acreages for 24-year period 1940-1963.
Source: Tables 31 to 40.

Not included in Table 30 are small acreages of beets and onions. In addition, sweet corn is a fairly important crop from the standpoint of acres and income. During the period 1954-1963 an average of 5,240 acres of sweet corn were harvested per year with an estimated annual value of approximately $1.0 million. More recently, the production of trellised tomatoes in the mountain areas has become very important. The value of this crop was estimated at $1.53 million in 1963 and approximately $1.7 million in 1964.

Acres harvested, average yields and prices for the major crops are shown in Tables 31 to 40. Production of these crops is scattered throughout the state depending upon their adaptability to varying soil and climatic conditions and available market outlets. Some tomatoes, snap beans and cabbage are produced in the mountain areas. None of the crops are particularly important in the Piedmont. Most of the crops produced for market are grown mainly in the mountains and eastern part of the state.

Some of the crops are grown for processing, particularly cucumbers, snap beans and cabbage. Cucumbers is the most important crop in this category. From 1954 to 1963 an average of 15,650 acres were harvested per year and reached 20,100 acres in 1963 with an estimated value of nearly $2.6 million. During the same period an average of 2,940 acres of snap beans for processing were

Table 31. Production of commercial snap beans, North Carolina, 1940-1964

Year	Acres harvested[a]	Yield per acre	Average price received
		(bu.)	(dols./bu.)
1940	12,400	75	.76
1941	12,500	69	1.13
1942	12,200	88	1.07
1943	14,600	91	1.51
1944	12,400	82	1.70
1945	11,200	94	2.21
1946	12,300	98	1.89
1947	14,400	100	1.16
1948	14,900	98	2.80
1949	15,100	88	2.04
1950	15,800	91	1.40
1951	13,700	88	1.98
1952	12,450	82	2.42
1953	13,200	82	2.63
1954	14,100	93	1.80
1955	13,700	110	1.52
1956	12,300	107	2.32
1957	11,900	123	1.88
1958	12,700	113	1.75
1959	12,200	123	2.06
1960	11,200	117	2.08
1961	10,350	113	2.10
1962	10,100	120	2.22
1963	10,300	127	2.28
1964[b]	11,000	127	2.37

[a]Includes late spring, late summer and early fall production. Snap beans converted from cwt. to bushels for years 1954-64 where 30 lbs. = 1 bushel.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

harvested per year with an average value of $641,000 per year. Most of the crops grown for processing are grown under marketing contracts with processing firms.

There are very few farms which might be classified as specialized truck crop farms. In most cases these crops are grown as supplementary sources of income to other enterprises included in the farming system and add considerably to the farm income when efficient production practices are followed. Often the short production season allows double-cropping of the land by second crops. Even though these crops may be quite important on some farms, labor often is a limiting factor when they are competing for labor resources required on other enterprises.

Much of our vegetable output is shipped as fresh produce to northern markets although southern markets are becoming increasingly important. Because of the seasonal pattern of production, consumers in the state must rely upon large shipments of most of these products from other areas to meet their year-round needs.

Horticultural crops offer considerable income potential to North Carolina farmers but this is a long-term rather than an immediate potential. Increased production must be reasonably slow and orderly. Most of the increase needed can and probably should be grown by those already in the business. There is no national shortage of horticultural crops which means that North Carolina producers must face keen competition with other areas in terms of quality and marketing efficiency as well as production efficiency.

Table 32. Production of lima beans, North Carolina, 1940-1964

Year	Acres harvested	Yield per acre[a]	Average price received
		(bu.)	(dols./bu.)
1940	2900	50	1.75
1941	3100	60	1.40
1942	2900	50	1.80
1943	2300	35	2.85
1944	1800	40	2.90
1945	1600	40	4.00
1946	1400	55	4.00
1947	1500	55	3.10
1948	1700	70	2.00
1949	1600	70	2.45
1950	1600	60	2.55
1951	1600	60	1.80
1952	1500	60	3.00
1953	1400	60	3.20
1954	1300	63	3.94
1955	1300	77	2.14
1956	1500	74	2.80
1957	1400	80	3.29
1958	1400	97	2.76
1959	1300	71	3.29
1960	1400	103	2.70
1961	1400	80	3.46
1962	1400	100	3.15
1963	1300	100	3.36
1964[b]	1400	86	3.33

[a]Lima beans converted from cwt. to bushels for years 1954-64 where 35 lbs. = 1 bushel.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 33. Production of cucumbers for fresh market, North Carolina, 1940-1964

Year	Acres harvested	Yield per acre[a]	Average price received
		(bu.)	(dols.)
1940	4000	75	.60
1941	3800	95	3.15
1942	4000	80	1.00
1943	3400	75	2.30
1944	4600	55	1.50
1945	4500	75	2.15
1946	5700	80	2.20
1947	6500	85	1.75
1948	5900	85	1.70
1949	6800	75	1.35
1950	6300	75	1.25
1951	5200	75	1.50
1952	4100	80	3.35
1953	4900	90	2.25
1954	4900	110	2.35
1955	6400	115	1.25
1956	5700	83	2.93
1957	6100	94	1.66
1958	6200	104	1.25
1959	5600	83	1.42
1960	5800	98	1.27
1961	4800	92	2.78
1962	4900	104	1.54
1963	4700	114	2.74
1964[b]	5000	114	2.45

[a]Late spring for fresh market. Cucumbers converted from cwt. to bushels for years 1954-64 where 48 lbs. = 1 bushel.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 34. Production of cabbage, North Carolina, 1940-1964

Year	Acres harvested	Yield per acre[a]	Average price received
		(cwt.)	(dols./cwt.)
1940	7,650	106	.57
1941	7,500	88	1.36
1942	7,300	108	.93
1943	8,100	92	2.54
1944	8,600	112	1.92
1945	8,800	128	1.30
1946	7,600	130	1.62
1947	7,500	114	2.88
1948	8,600	140	1.39
1949	8,800	128	2.11
1950	10,400	136	1.48
1951	9,300	121	2.27
1952	9,700	116	2.66
1953	10,200	116	1.78
1954	10,350	110	1.73
1955	9,350	120	1.93
1956	9,400	139	1.34
1957	9,400	126	1.94
1958	9,100	140	1.21
1959	9,000	130	2.50
1960	9,500	130	1.27
1961	9,800	139	1.41
1962	8,500	139	1.73
1963	8,000	162	1.38
1964[b]	7,500	149	2.56

[a]All cabbage - late spring, late summer and late fall, including cabbage for processing. Cabbage converted from tons to cwt. for years 1940-53 where one ton = 20 cwt.

[b]Preliminary.

Source: N. C Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 35. Production of lettuce, North Carolina, 1940-1964

Year	Acres harvested	Yield per acre[a]	Average price received per crate
		(crate)	(dols.)
1940	1800	90	2.00
1941	1300	70	1.60
1942	1300	75	2.25
1943	950	70	4.90
1944	1050	115	3.75
1945	1250	125	3.65
1946	1400	140	1.50
1947	1200	60	4.50
1948	1300	120	4.90
1949	1300	125	3.10
1950	1200	70	2.50
1951	1300	120	4.25
1952	1500	125	3.50
1953	1500	120	3.50
		(cwt.)	(dols./cwt.)
1954	1700	84	5.30
1955	1700	52	6.80
1956	1600	55	5.40
1957	1800	75	2.40
1958	800	80	7.40
1959	700	80	3.20
1960	500	70	2.60
1961	350	160	4.80
1962	350	150	6.10
1963	350	150	3.60
1964[b]	300	150	4.20

[a]Early spring production. Beginning in 1954, yield and price reported on the basis of cwt.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 36. Production of green peppers, North Carolina, 1940-1964

Year	Acres harvested	Yield per acre[a]	Average price received
		(bu.)	(dols./bu.)
1940	2400	175	.45
1941	2600	180	.65
1942	2500	160	1.15
1943	2300	170	1.80
1944	2700	125	1.55
1945	3100	140	2.15
1946	3900	170	1.45
1947	3500	145	1.35
1948	3600	160	2.00
1949	3800	140	1.55
1950	4200	130	1.85
1951	4600	140	.90
1952	3500	120	4.25
1953	4100	160	2.25
1954	5400	120	2.40
1955	6000	160	1.06
1956	5100	140	1.45
1957	5400	128	2.80
1958	6300	140	1.21
1959	5700	144	1.88
1960	5200	148	1.65
1961	5300	148	2.50
1962	5500	160	2.00
1963	5500	152	2.58
1964[b]	5800	160	2.33

[a]Early summer. Green peppers converted from cwt. to bushels for years 1954-64 where 25 lbs. = 1 bushel.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 37. Production of tomatoes, North Carolina, 1940-1964

Year	Acres harvested	Yield per acre[a]	Average price received
		(bu.)	(dols./bu.)
1940	4400	70	.35
1941	3500	70	1.00
1942	4300	80	1.25
1943	4100	60	2.25
1944	3400	50	1.80
1945	2400	75	2.25
1946	2700	65	2.05
1947	2900	60	1.95
1948	3300	70	2.30
1949	2500	80	1.85
1950	2800	75	4.00
1951	2400	85	1.30
1952	2200	80	4.00
1953	2700	70	4.90
1954	2900	75	3.28
1955	2800	75	2.86
1956	2800	68	4.37
1957	3000	80	4.48
1958	3000	89	1.68
1959	2800	80	3.14
1960	2700	82	2.63
1961	2500	80	2.91
1962	2300	89	3.86
1963	2100	98	3.70
1964[b]	2300	98	4.14

[a]Early summer. Tomatoes converted from cwt. to bushels for years 1954-64 where 56 lbs. = 1 bushel.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 38. Production of cantaloupes, North Carolina, 1940-1964[a]

Year	Acres harvested	Yield per acre	Average price received per crate
		(crate)	(dols.)
1940	7200	75	.80
1941	7800	65	.95
1942	6300	60	1.30
1943	5100	70	2.15
1944	5200	65	1.90
1945	5000	60	2.75
1946	5600	55	1.85
1947	5400	50	1.75
1948	5100	55	2.45
1949	5000	50	1.50
1950	4800	50	1.90
1951	4300	40	1.90
1952	3900	50	4.00
1953	4500	45	2.45
		(cwt.)	(dols./cwt.)
1954	3200	46	2.60
1955	3500	50	2.05
1956	3400	54	2.75
1957	3300	48	2.50
1958	3900	55	2.50
1959	3500	48	3.50
1960	3500	48	3.45
1961	3000	48	3.70
1962	2800	50	3.80
1963	2700	50	4.90
1964[b]	2500	55	4.70

[a]Beginning in 1954, yield and price reported on the basis of cwt.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 39. Production of watermelons, North Carolina, 1940-1964[a]

Year	Acres harvested	Yield per acre	Average price per 1,000 melons
		(melons)	(dols.)
1940	14,200	225	85
1941	14,200	175	120
1942	11,400	230	220
1943	10,500	230	380
1944	12,700	255	196
1945	12,200	190	303
1946	12,600	205	413
1947	11,000	210	180
1948	9,800	225	340
1949	10,700	170	175
1950	10,900	170	290
1951	9,200	200	284
1952	8,700	205	445
1953	10,000	220	419
		(cwt.)	(dols./cwt.)
1954	11,800	51	150
1955	15,000	52	105
1956	12,000	55	100
1957	11,200	60	135
1958	13,800	65	80
1959	12,000	60	125
1960	11,800	65	65
1961	10,900	50	125
1962	9,700	60	115
1963[b]	8,700	65	130
1964	8,500	65	130

[a]Beginning in 1954, yield and price reported on the basis of cwt.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 40. Production of strawberries, North Carolina, 1940-1964[a]

Year	Acres harvested	Yield per acre	Average price received per crate
		(crate)	(dols.)
1940	5100	95	3.40
1941	6700	95	2.00
1942	6600	105	2.80
1943	3900	70	6.65
1944	2500	75	7.80
1945	2400	80	9.10
1946	2400	90	10.90
1947	2600	70	7.35
1948	2600	100	8.45
1949	2900	65	7.90
1950	2700	60	7.90
1951	2600	95	6.30
1952	2000	80	8.20
1953	1700	90	7.70
		(lbs.)	(cents/lb.)
1954	1500	2160	.217
1955	1400	900	.361
1956	1300	1660	.227
1957	1500	2300	.229
1958	1600	3100	.245
1959	1600	3100	.263
1960	1500	2200	.305
1961	1600	3300	.312
1962	1800	2400	.279
1963	2000	2100	.357
1964[b]	2200	2500	.300

[a]Beginning in 1954, yield and price reported on the basis of lbs.

[b]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

LIVESTOCK AND POULTRY PRODUCTION

Livestock and poultry constitute two important facets in the agriculture of North Carolina and are increasing in importance from the standpoint of resources allocated to these enterprises and also from the standpoint of income derived from the continuing expansion in production of products associated with these enterprises.

During the period 1952 to 1962 the combined cash receipts from livestock and poultry enterprises averaged about $271 million per year or 27 percent of total cash receipts from the sale of all farm products. Of this amount livestock accounted for 14 percent and poultry for 13 percent of the total.

In the division of cash receipts between livestock and poultry enterprises, they accounted for 52 percent and 48 percent of the total, respectively. They vary in relative importance on individual farms, ranging from merely supplementary sources of income to highly specialized systems of farming, particularly in the case of dairying, broilers, commercial egg production, and in some cases, beef cattle.

Livestock

Hogs

Although scattered throughout the state, commercial production of hogs tends to be concentrated most heavily in the Coastal Plains and Tidewater areas of the state. One reason for this concentration is that these are also areas of heaviest concentration of corn and soybean production. There are three major types of enterprise approach associated with hog production -- raising pigs to be fed out on the farm where produced, raising pigs to be sold as feeder pigs and fed out on other farms and purchase of feeder pigs to be fed out for market as slaughter hogs. Choice of either approach is influenced to some extent by the system of farming, type of facilities available on the farm for hog production and type of market outlets most conveniently available.

The average total cash receipts from hog marketings was $48.9 million per year for the period 1952-1962. There was an increase in sales of 16.7 percent from 1952 to 1962 with a high of about $60 million of cash receipts in 1958. Cash receipts were down about $2 million in 1963 from 1962.

A summary of hog production in North Carolina for the period 1940-1963 is presented in Table 41. The total number of sows farrowing (fall and spring) has varied but does not follow any definite cycle. One important feature is the increase in number of pigs saved per litter. This has been an important factor in the general upward trend in production and is closely aligned with the use of better management and production practices.

Table 41. Hog production in North Carolina, 1940-1964

Year	Spring pig crop: Dec. 1-June 1		Fall pig crop June 1-Dec. 1		Fall and Spring		Average number pigs saved per litter
	Number of sows farrowed	Number of pigs saved	Number of sows farrowed	Number of pigs saved	Total number sows farrowed	Total number pigs saved	
	(thousands)						(number)
1940	113	667	88	563	201	1230	6.1
1941	106	657	91	564	197	1221	6.2
1942	136	843	120	756	256	1599	6.2
1943	159	970	148	932	307	1902	6.2
1944	151	921	104	655	255	1576	6.2
1945	116	731	94	602	210	1333	6.3
1946	126	781	100	640	226	1421	6.3
1947	134	831	109	698	243	1529	6.3
1948	127	800	106	689	233	1489	6.4
1949	138	897	110	715	248	1612	6.5
1950	145	942	112	728	257	1670	6.5
1951	152	973	130	884	282	1857	6.6
1952	170	1071	114	752	284	1823	6.4
1953	139	931	97	650	236	1581	6.7
1954	157	1052	118	814	275	1866	6.8
1955	162	1102	117	760	279	1862	6.7
1956	160	1072	119	821	279	1893	6.8
1957	165	1155	131	904	296	2059	7.0
1958	167	1152	135	972	302	2124	7.0
1959	195	1384	142	1008	337	2392	7.1
1960	158	1106	124	880	282	1986	6.7
1961	152	1094	128	922	280	2016	7.2
1962	152	1110	134	978	286	2088	7.3
1963	152	1140	133	971	285	2111	7.4
1964[c]	152	1140	130	962	282	2102	7.5

Table 41 (continued)

Year	Production[a]	Marketings		Average price all hogs	Cash receipts from sales[b]
		Total	Outshipments number		
		(1,000 lbs.)	(1,000)	(dols./cwt.)	(1,000 dols.)
1940	243,300	57,200	286		
1941	229,990	61,705	301	8.90	8,367
1942	279,100	89,670	427	12.50	16,221
1943	341,011	133,266	637	13.40	23,988
1944	328,678	160,468	763	12.80	26,405
1945	264,975	102,990	474	13.90	20,161
1946	294,418	65,718	279	16.70	20,442
1947	292,365	71,360	334	22.80	27,474
1948	289,566	108,781	525	22.70	34,254
1949	298,032	140,897	701	18.40	33,008
1950	312,722	156,942	756	18.10	34,039
1951	333,606	161,056	777	20.30	39,758
1952	352,470	206,460	1020	18.40	43,709
1953	321,826	181,401	901	21.00	43,837
1954	345,990	198,225	969	22.60	50,043
1955	356,545	216,105	1035	16.10	39,909
1956	358,558	239,103	1128	14.70	36,643
1957	379,076	263,976	1272	18.00	48,993
1958	388,454	272,364	1321	19.80	55,539
1959	464,410	339,900	1593	14.90	51,578
1960	396,444	325,324	1527	15.60	51,628
1961	395,820	296,375	1374	17.10	51,845
1962	403,430	306,240	1416	16.50	51,500
1963	420,312	322,487	1499	15.30	50,179
1964[c]	433,448	366,441	1669	15.30	56,700

[a]Adjustments made for inshipments and changes in inventory.

[b]Cash receipts includes cash receipts from marketings and sales of farm slaughtered meat.

Note: Data not consistent with income data cited in the text because of different sources of data and methods of estimating.

[c]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Marketings, including outshipments, have increased in much greater proportion than production. Between 1940 and 1963 production increased about 67 percent with a range of from 230 million pounds (1941) to a high of 464 million pounds (1959). In the meantime, the proportion of production entering market channels increased from 23.5 percent to 77 percent. An important factor in this shift has been a very large decrease in the production and slaughter of hogs on farms. Farmers have found that the 1 to 3 sow-size enterprise does not constitute an economical unit. Consequently, there has been a shift to larger size herds, especially where hogs are being produced for market.

Price is the most variable factor in variations in production and total cash receipts. Table 42 shows the average price of hogs on North Carolina markets by years and months from 1934 to 1964. The prices represent quotations for top hogs as of the 15th of each month or the nearest date thereto.[14] Although there was considerable variation between years, there was very little variability in the average price per month over the 31-year period. However, using the past 10 years, we find differences between months ranging from a low of $2.00 cwt. (1961) to as much as $8.65 cwt. (1954). This check does not reveal any consistent pattern of months when the highest and lowest prices prevailed. See Figure 31 for comparison of prices and production, 1940-1963.

Consumers exert a very large influence in establishing the price level of hogs and price relationships with substitutable meat products when they decide to buy or not to buy pork. In recent years there has been a noticeable shift toward beef in the proportionate amounts of per capita consumption of beef and pork.

The "corn-hog ratio" (determined by dividing the price per cwt. of hogs by price per bushel of corn to obtain the number of bushels of corn that can be purchased with a hundred pounds of hog) has been considered a fair indicator of when to go into or expand hog production. However, with the change in cost structure of producing hogs this factor has become less important even though corn still remains the major item in feed cost. Producers must give more attention to budget analysis for determining the potential profit that may be realized by adopting or expanding the hog enterprise.

The potential for hog production in North Carolina appears good. Present production methods enable farmers to have pigs ready for market in 4.5 to 5 months. Packing plants in the state are ample to handle a considerably larger volume since they are operating at about 70 percent of capacity.

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[14] These prices should not be confused with the average prices of all hogs shown in Table 41.

Table 42. Average price of hogs by months and years, North Carolina, 1934-1964

Year	Jan.	Feb.	Mar.	Apr.	May	June
			(dols. per cwt.)			
1934	3.45	4.60	4.40	3.90	3.40	4.70
1935	8.25	9.15	9.70	8.90	9.70	9.70
1936	10.75	10.75	10.55	10.60	10.10	10.50
1937	10.50	10.00	10.45	10.15	11.60	11.50
1938	8.50	8.85	9.35	8.60	8.65	9.00
1939	7.70	8.20	8.00	7.00	6.90	7.00
1940	5.65	5.25	5.50	6.35	6.00	5.40
1941	8.85	7.75	8.10	9.10	9.35	10.90
1942	11.85	13.00	13.65	14.50	14.20	14.40
1943	15.00	15.35	15.40	15.50	14.50	14.15
1944	13.45	13.55	14.10	13.75	13.45	13.50
1945	14.45	14.45	14.45	14.45	14.45	14.45
1946	14.50	14.50	14.50	14.50	14.50	14.50
1947	25.25	29.50	29.25	28.00	25.25	25.25
1948	28.75	26.50	25.25	23.50	26.00	29.50
1949	21.50	21.75	22.50	21.75	22.25	22.25
1950	17.75	17.85	18.00	17.75	20.50	21.75
1951	22.00	23.75	22.75	22.25	22.25	23.00
1952	18.35	18.10	18.25	17.85	22.25	21.25
1953	19.25	21.75	22.25	24.65	25.25	26.00
1954	27.35	27.25	27.90	28.65	28.25	27.00
1955	18.00	16.50	15.50	17.25	17.10	20.25
1956	12.25	12.25	12.50	14.25	16.10	16.75
1957	17.50	16.50	17.00	17.00	17.25	19.20
1958	19.40	19.90	20.85	20.75	22.70	22.80
1959	17.25	16.00	16.50	16.25	16.50	16.75
1960	13.00	14.00	15.50	16.15	16.75	17.50
1961	18.50	18.25	17.25	17.75	17.50	17.15
1962	17.75	17.40	16.75	16.60	16.00	17.75
1963	16.30	15.75	14.00	14.50	15.25	17.25
1964	15.75	15.75	15.50	15.25	15.50	16.75
Avg.	15.43	15.61	15.67	15.74	16.33	16.70

Table 42 (continued)

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.
			(dols. per cwt.)				
1934	4.75	7.85	7.50	6.15	5.90	7.15	5.31
1935	10.70	12.00	11.65	10.65	9.60	9.80	9.98
1936	10.75	11.40	11.00	10.15	9.55	10.35	10.54
1937	12.60	13.10	12.25	11.40	9.25	8.35	10.93
1938	10.05	9.80	9.15	8.60	7.90	7.45	8.82
1939	7.15	6.65	9.25	7.15	6.50	5.75	7.27
1940	6.75	7.30	7.25	6.40	6.10	6.85	6.33-
1941	11.60	12.15	12.30	11.35	10.50	11.15	10.26
1942	14.50	14.70	15.00	15.30	14.10	14.75	14.16
1943	13.90	14.60	15.10	14.65	14.15	13.50	14.65
1944	14.45	14.45	14.45	14.45	14.45	14.45	14.04
1945	14.45	14.45	14.45	14.50	14.50	14.50	14.45
1946	22.85	24.00	25.00	27.50	25.25	25.00	19.72
1947	28.75	28.75	32.00	30.00	25.85	28.75	28.05
1948	30.50	32.25	30.00	27.50	25.35	22.75	27.32
1949	23.00	23.60	22.75	19.50	17.00	16.00	21.15
1950	25.75	26.50	24.50	20.75	19.25	20.75	20.92
1951	23.25	23.50	21.65	22.50	19.60	18.75	22.10
1952	23.50	23.75	21.60	20.75	17.60	19.25	20.21
1953	27.50	27.25	26.00	24.75	24.00	27.00	24.64
1954	26.00	24.50	21.25	20.00	20.75	20.00	24.91
1955	17.75	16.80	16.25	15.50	13.20	12.00	16.34
1956	16.50	17.50	16.25	16.25	15.30	16.50	15.20
1957	20.10	21.20	19.75	17.25	17.50	18.90	18.26
1958	22.25	22.50	21.50	19.90	19.90	19.25	20.97
1959	14.00	15.00	14.50	13.50	14.00	13.25	15.29
1960	18.15	18.40	17.20	18.50	18.25	18.50	16.82
1961	18.25	18.75	19.00	18.00	17.00	17.75	17.93
1962	19.00	18.75	19.30	17.65	17.75	17.70	17.70-
1963	18.25	18.25	16.25	16.00	16.00	15.00	16.07
1964	17.50	16.85	17.50	17.00	15.65	16.50	16.29
Avg.	17.57	17.99	17.47	16.53	15.53	15.70	16.34

Source: Reports from the Division of Markets, N. C. Department of Agriculture. Prices quoted for top hogs as of the 15th of each month.

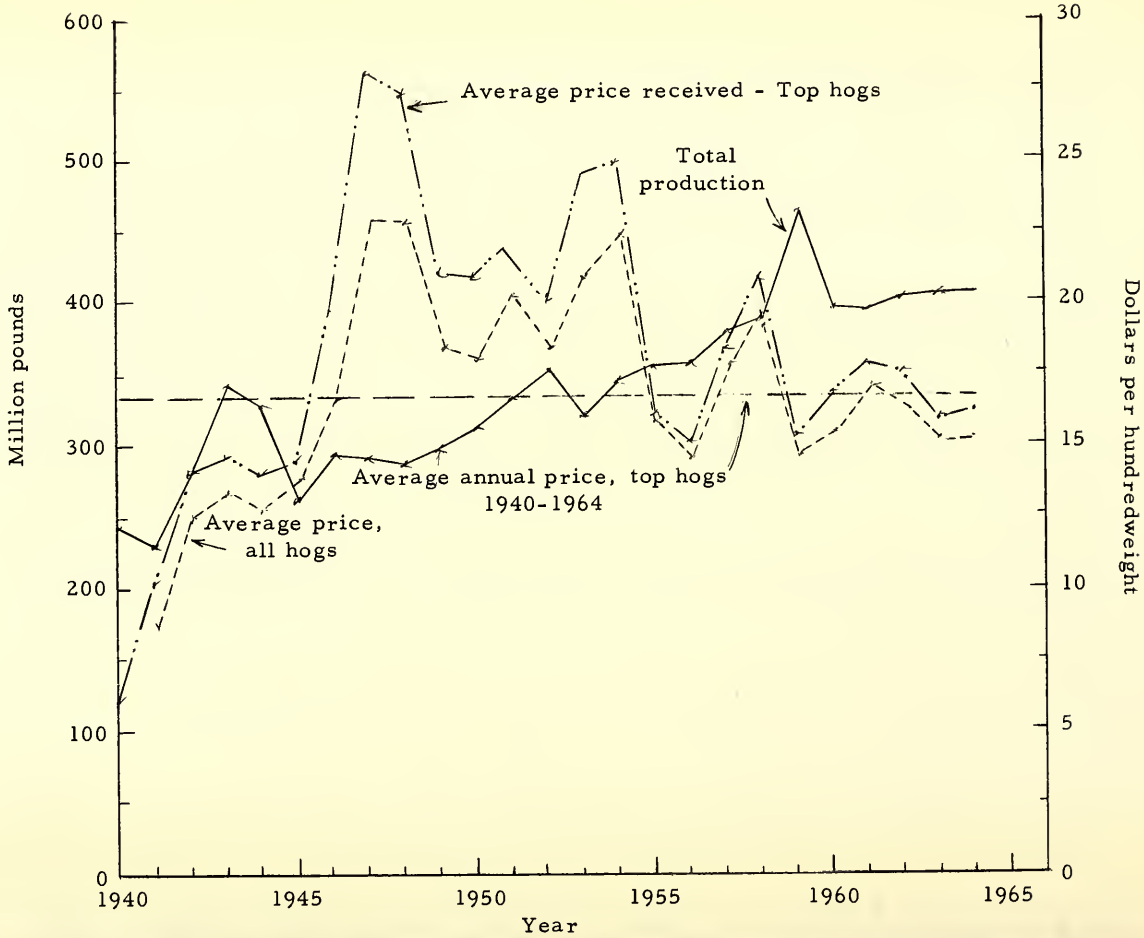

Figure 31. Variations in production and hog prices, North Carolina, 1940-1964

If hog production were expanded by 1 million head per year and the price averaged 15 cents per pound, this could result in an increase of about $30 million gross income or an increase in net farm income of about $6 million, allowing an average cost of 12 cents per pound with the use of efficient management and production practices.

Cattle and Calves

Cattle production in North Carolina falls into two major categories -- dairying and beef cattle. The combined cash receipts from both types of enterprises make up about 63 percent of total cash sales of all livestock products and about 9 percent of total cash receipts from the sale of all farm products (average 1952-1962). Cash receipts from the sale of cattle and calves averaged about $27.6 million per year for the period 1952-62 with a range from about $15.9 million in 1952 to $36.4 million in 1959. The estimated cash receipts in 1963 were $31.6 million or about 13 percent less than in 1962 but were about double the amount of receipts in 1952.

The beef cattle industry in North Carolina has gained in importance as a major source of income. Overall it is a heterogeneous grouping of different types of animals from different sources. The sale of cull cows and calves from dairy herds is secondary to the total production of cattle for slaughter. Beef cattle production can be placed in two general classes -- herds on farms operating on a cow-calf basis where animals are finished out on the farm or sold as feeder stock for finishing out on other farms. The production of stocker cattle has increased rapidly in recent years. This is a new program and one that is expected to expand rapidly in the future. It consists of purchasing 300 to 500 pound calves in the fall, growing them through the winter, and selling them in the spring for use in stocking grass pastures. Another practice is the purchase of feeder stock for feeding out, a practice often used on small farms with some excess resources not required by other enterprises, but on a scale too small for efficient operation such as found in the first category mentioned. In other cases, where beef cattle producers concentrate on production of breeding stock, sale of slaughter cattle consists mainly of animals culled from the breeding herd when not considered useful or desirable as breeding stock.

Beef cattle production tends to be concentrated in the central Piedmont and Mountain areas. However, the most rapidly expanding area in beef cattle production in recent years has been in eastern North Carolina. Cow-calf herds and commercial feed lots account for most of this expansion. On farms in this area, beef cattle are being used as a means of supplementing income from crops on which control programs have resulted in the release of land and labor resources which can be used profitably in the production of beef.

The number of cattle on farms as of January 1 classed primarily as beef animals has continued to increase (Table 43). Total production has increased greatly since 1940. The number of cattle on feed reported as of January 1 was 27,000 in 1962, 32,000 in 1963 and 34,000 in 1964. This compares with only 8,000 reported in 1959.[15] Approximately 25,460 head of feeder cattle were sold in North Carolina through state graded sales in the fall of 1964. The average consignment to these graded feeder cattle sales was about 12 to 15 head per farm, indicating the large number of small producers in the state. Tables 44, 45 and 46 show a summary of sales through organized markets for the three major classifications of feeder stock. These data do not account for the large number of cattle sold directly to processing plants or through a large number of local auction markets. Use of average price of all cattle sold into slaughter channels would be misleading because of the heterogeneous composition of all cattle sold for beef.

There are a number of reasons why beef cattle can increase farm incomes. Except for investment in cattle, fencing and pasture costs, capital requirements are not prohibitive. In the case of feeder animals, the turnover is fairly rapid. Farmers can resort to field gleanings supplemented by pasture and silage. Labor requirements are low, thereby making this enterprise highly attractive to part-time and semi-retired farmers. Low grade hay such as peanut hay often can be disposed of more profitably by feeding to beef animals. There is a high consumer demand for beef products that has been increasing in recent years. The necessity of importing large quantities of beef into the state improves the price position of local producers of high quality animals. There are adequate slaughter facilities in the state to allow for a large expansion in beef cattle production. There are no marketing problems of sufficient magnitude to prevent continued growth of the industry in North Carolina. Buying and selling on the basis of grade enables farmers to exercise better judgement in the manipulation of their feeder cattle operations.

It does not appear to be a question of whether to expand beef cattle production in the state, but how fast the industry can be expanded without any detriment to the income earning capacity of farms where suitable production facilities can be provided. Such an increase could have a profound effect upon the economy of the state by increasing farm income and greater efficiency for

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[15] Based upon survey reports submitted by county extension personnel in the major beef producing counties.

Table 43. Cattle on farms, North Carolina, January 1, production and marketings, 1940-1964

Year	Total cattle on farms	Milk stock on farms[a]	Other cattle on farms[b]	Production total cattle and calves[c]	Marketings[d]	Cash receipts from sales[e]
	(number-1,000)			(1,000 lbs.)	(1,000 lbs.)	(1,000 dols.)
1940	595	479	116	82,400	70,425	
1941	613	488	125	90,405	68,445	
1942	644	512	132	95,830	66,965	
1943	696	540	156	108,320	75,075	
1944	759	577	182	122,515	112,305	
1945	751	571	180	122,100	141,305	
1946	691	537	154	117,205	118,720	
1947	677	530	147	103,345	100,365	
1948	663	518	145	103,000	105,070	
1949	650	508	142	106,430	98,395	
1950	670	520	150	111,770	71,110	
1951	737	545	192	136,230	91,270	
1952	796	562	234	143,570	44,675	15,949
1953	939	581	358	187,225	120,115	18,359
1954	995	583	412	200,760	168,320	21,600
1955	985	566	419	196,815	181,955	24,625
1956	955	518	437	184,770	190,400	22,966
1957	926	513	413	181,130	184,140	25,895
1958	907	503	404	185,230	182,975	33,675
1959	889	486	403	191,515	171,125	36,375
1960	907	488	419	193,740	190,165	34,376
1961	898	477	421	193,605	182,205	33,144
1962	907	452	455	200,827	196,180	36,253
1963	907	440	467	201,875	177,885	31,593
1964[f]	925	422	503	209,375	215,410	34,531

[a]Includes cows, heifers and heifer calves.

[b]Primarily for beef purposes. Includes cows, heifers, steers, calves and bulls.

[c]Total cattle and calves with adjustments for inshipments and changes in inventory.

[d]Excludes interfarm sales.

[e]Includes receipts from marketings and sales of farm slaughtered meat.

[f]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Table 44. Feeder calf sales, North Carolina, 1950-1964

Year	Number sold	Average weight	Average price per cwt.	Total value
		(lbs.)	(dols.)	(dols.)
1950	1,232	437	33.33	177,910
1951	1,806	445	36.88	296,591
1952	3,343	439	27.87	407,814
1953	3,716	445	17.10	282,776
1954	4,669	454	16.97	360,123
1955	4,876	456	18.95	422,528
1956	5,636	463	18.58	492,016
1957	5,525	473	21.45	560,267
1958	6,916	459	29.01	920,810
1959	9,618	461	27.66	1,225,332
1960	10,184	457	23.87	1,110,623
1961	10,401	473	25.06	1,232,603
1962	12,925	455	26.89	1,581,147
1963	17,179	458	23.79	1,870,619
1964	16,493	453	20.60	1,540,463

Source: Data compiled by Extension Staff, Animal Husbandry, North Carolina State University, Raleigh.

Table 45. Yearling cattle sales, North Carolina, 1954-1964

Year	Number sold	Average weight	Average price per cwt.	Total value
		(lbs.)	(dols.)	(dols.)
1954	370	--	17.49	--
1955	1,720	717	17.88	220,627
1956	2,395	712	16.97	289,174
1957	2,930	707	18.50	383,087
1958	3,897	730	24.52	697,968
1959	5,150	692	25.05	893,316
1960	5,062	691	21.53	753,403
1961	5,359	707	23.08	874,041
1962	7,378	677	24.73	1,235,789
1963	10,849	688	22.02	1,642,461
1964	8,969	675	19.00	1,150,578

Source: Data compiled by Extension Staff, Animal Husbandry, North Carolina State University, Raleigh.

Table 46. Stocker cattle sales, North Carolina, 1956-1965

Year	Number sold	Average weight	Average price per cwt.	Total value
		(lbs.)	(dols.)	(dols.)
1956	711	581	17.15	70,802
1957	990	543	20.44	109,857
1958	1,823	588	26.40	283,163
1959	2,459	556	29.96	409,506
1960	3,063	529	26.18	424,105
1961	2,759	540	25.24	376,066
1962	2,814	531	26.33	393,245
1963	5,249	541	26.21	744,946
1964	8,321	545	21.16	967,650
1965	775	526	22.55	920,941

Source: Data compiled by Extension Staff, Animal Husbandry, North Carolina State University, Raleigh.

processors by enabling them to utilize excess capacity. Increased efficiency in the marketing functions also benefits consumers.

Cattle prices are slightly depressed at present partly because cattle numbers in the United States have reached an all time high. However, this does not mean that an efficient beef cattle operation cannot be made profitable. Trends indicate that periods of low prices tend to be followed by rising prices. Potential producers desiring to get into the business or those planning to expand should take advantage of the low prices to obtain both breeding and feeder stock so as to reduce their capital outlay.

There is a considerable amount of idle land or land used for other enterprises not particularly adaptable to prevailing soil conditions that could be used profitably in the production of pasture and forage crops. The addition of beef cattle on farms where such conditions exist would provide more stability to farm income by filling gaps during years when income from crops is depressed because of adverse production and market conditions. One advantage of beef cattle in this connection is the greater flexibility in marketing that permits animals to be sold at seasons when price advantage is greatest.

Dairying

Dairying is an important industry in the state from the standpoint of farm income. From 1952 to 1962 total cash farm receipts from dairy products averaged about $61.2 million per year with a continuing upward trend over the 11-year period. Sales were approximately $72.2 million in 1963 which was an increase of about 38.4 percent over 1952.

The average number of cows milked per year has decreased in recent years but total milk production has remained at a high level as a result of the increase in average production per cow (Table 47). See Figure 32 for the trend in number of milk cows and total milk production, North Carolina, 1940-1964. Grade A milk producers sold 1,135 million pounds of milk in 1964 compared to 427 million pounds in 1950. The number of Grade A producers has declined in recent years but there has been an increase in the size of herds.

Total milk production includes estimates of milk consumed on farms plus sales of fluid milk and milk sold for manufacturing uses. North Carolina dairy farmers produced 1,200 million pounds of milk for sale in 1964. Of this amount, 1,135 million pounds of Grade A milk were sold to bottling plants which, in turn, sold 979 million pounds in fluid form with the remainder going into manufactured products. Manufacturing grade milk sold directly to manufacturing plants declined from 145 million pounds in 1955 to 66 million pounds in 1964. This decline has been off-set to some extent by sales of Grade A milk to manufacturing plants. Diversion of Grade A milk to uses other than as fluid milk gives rise to an average blend price. Table 48 shows the comparative difference in prices of milk in the two major categories of use.

Plant prices fixed by the North Carolina Milk Commission as of early 1963 were $6.40 for milk used in fluid form (Class I), except for the amount sold as Class II (skim milk and buttermilk) which was $4.35 per cwt. for 3.5 percent milk. These prices are subject to revision as supply and demand conditions change.

The Milk Commission, established in 1953, regulates the prices dealers pay for milk used in specific classes and establishes the rules for the allocation of money due producers. It promotes market stabilization among dealers by authority of a fair trade provision in the Milk Commission Law. The North Carolina Board of Agriculture defines dairy product standards and labelling requirements and also operates a check testing program for producer milk and for bottled milk.

Despite increased production efficiency through improved breeding and feeding practices and methods of handling milk,

Table 47. Milk production, North Carolina, 1940-1964

Year	Average number cows milked[a]	Average milk per cow[b]	Total milk production[b]	Grade A milk purchased from producers	Average number Grade A producers	Average price received for all milk
	(1,000)	(lbs.)	(mil. lbs.)	(1,000 lbs.)	(no.)	(dols. per cwt.)
1940	333	3,930	1,309			2.90
1941	346	3,990	1,381			3.00
1942	354	3,960	1,402			3.45
1943	370	3,960	1,465			4.00
1944	384	3,930	1,509			4.25
1945	371	4,030	1,495			4.25
1946	359	4,090	1,468	172,866		5.05
1947	353	4,210	1,486	216,113		5.75
1948	347	4,260	1,478	256,361	2,274	6.15
1949	342	4,470	1,529	339,827	3,083	5.70
1950	350	4,460	1,561	426,966	3,843	5.66
1951	357	4,450	1,589	485,407	4,252	5.98
1952	367	4,400	1,615	522,803	4,520	5.75
1953	376	4,460	1,677	612,605	4,791	5.52
1954	370	4,520	1,672	665,209	5,183	5.34
1955	346	4,800	1,661	689,328	5,058	5.46
1956	324	5,160	1,672	758,742	4,888	5.52
1957	312	5,400	1,685	837,158	4,762	5.47
1958	292	5,460	1,594	836,217	4,275	5.61
1959	279	5,640	1,574	901,108	4,315	5.71
1960	275	5,700	1,568	959,911	4,096	5.67
1961	266	5,975	1,589	1,037,689	3,925	5.52
1962	256	6,130	1,569	1,079,986	3,715	5.51
1963	250	6,200	1,550	1,106,784	3,412	5.61
1964[c]	242	6,420	1,554	1,135,163	3,170	5.73

[a]Excludes heifers not fresh.

[b]Excludes milk consumed by calves and milk produced by cows not on farms.

[c]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

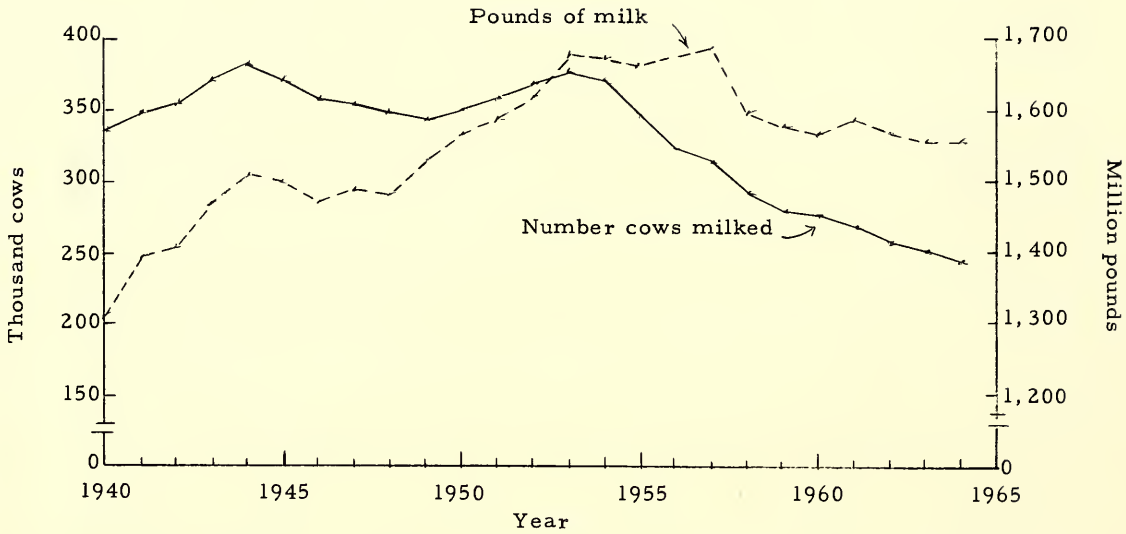

Figure 32. Number of milk cows and milk production, North Carolina, 1940-1964

Table 48. Average prices received by farmers for milk, North Carolina, 1952-1964

Year	Fluid use	Manufacturing use	Average price, all milk
		(dollars per cwt.)	
1952	6.16	4.49	5.75
1953	6.05	3.65	5.52
1954	5.79	3.30	5.34
1955	5.89	3.39	5.46
1956	5.87	3.50	5.52
1957	5.78	3.53	5.47
1958	5.96	3.44	5.61
1959	5.97	3.47	5.71
1960	5.89	3.49	5.67
1961	5.69	3.50	5.52
1962	5.67	3.36	5.51
1963	5.75	3.37	5.61
1964[a]	5.86	3.42	5.73
Average[b]	5.87	3.53	5.57

[a]Preliminary.

[b]Simple average of 13-year period.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

North Carolina producers are faced with the problem of a cost-price squeeze. Production costs have increased relative to prices farmers receive for their milk. Many small and inefficient producers have been forced out of dairying.

North Carolina has become self-sufficient in meeting its fluid milk needs. However, there is need for caution against getting into an excessive surplus situation. This could create burdensome disposal problems and cause average prices received by producers to decline. The Grade A milk industry is faced with the question of whether to encourage further expansion to take advantage of other market opportunities or to discourage further expansion by freezing bases or adopting a quota plan of some type on a state-wide basis.

About 50 percent of the producers ship to processing firms which have adopted base plans which does not permit extensive increases in bases unless purchased from other producers. In such cases, this has contributed to a decrease in supply since some owners

have sold their base and the new owner has not included the cows in his herd.

Under present conditions, any sizeable increase in Grade A milk would have to go into surplus uses such as cottage cheese, ice cream and other manufactured milk products or to fluid markets in other states. This could result in further declines in the average blend price and force additional high-cost producers out. On the other hand, some reserve supply of milk (10 to 15 percent) is needed to insure sufficient milk to meet fluid milk needs. In some areas, plants are sometimes in short supply at certain seasons of the year while other plants may have more milk than needed for fluid use. This is a problem of distribution.

The dairy situation in North Carolina could be helped by increased consumption of milk and milk products. Although total consumption has been rising steadily, per capita consumption of milk by North Carolina residents is below the national average. The large increase in output of commercial dairies in recent years has been accompanied by an increase in milk sales at a slightly higher rate than the increase in production. Prices and base plans administered by the Milk Commission are designed to help keep supply and demand in reasonable balance.

The dairy industry is quite complex in its overall structure. The problems of pricing, distribution and classification of milk into uses which satisfy the demand of consumers and assure maximum returns to producers, processors and distributors necessitate a very intricate market organization. Many producers are concerned because of the uncertainty about the kind of market conditions which may prevail in the future.

A properly equipped and efficient dairy farm requires a large outlay of fixed and operating capital. The process of enlarging dairy herds and adopting modern equipment for producing and handling milk has caused many farmers to become heavily indebted. The availability of easy credit has contributed to this financial situation. Overcapitalizing the dairy enterprise beyond the basic requirements for efficient production increases costs and lowers the margin of profit to milk producers. In the event of a severe cost-price squeeze, inefficient producers with a large indebtedness may find themselves under heavy economic pressure. This is not meant to imply that the dairy industry is threatened with an economic situation that would seriously affect its contribution to the agricultural economy of the state. However, it does mean that careful planning and coordination of all aspects of the industry are necessary to insure a steady upward growth.

There are two important programs operating in the state which are directed toward stimulating interest in dairying and increased production efficiency. One activity is the Dairy Herd Improvement Association (DHIA) testing program. A summary of the growth of this program is presented in Table 49. Farmers have benefited greatly by a systematic check on herd performance. These checks are useful in three ways: (1) culling unprofitable animals to increase herd efficiency; (2) feeding in accordance with inherent producing capacity of cows; and (3) breeding to upgrade the herd and raise the inherent milk and butterfat production. Records kept in connection with the testing program are the key to obtaining the objectives embodied in the overall program.

Closely allied with the DHIA program is the artificial breeding program, one of the farmer's most useful means of improving herd performance. This program has grown rapidly as indicated in Table 50. Improved techniques for preserving semen from high production proven sires has broadened the scope of the program by permitting several organizations to provide service on a competitive basis. In addition to the organized associations, distributor technicians are available so that producers in all counties can have access to artificial breeding services. There were 110 technicians breeding cows in North Carolina in 1964. The two programs have been of mutual benefit to the dairymen participating in them. The very favorable results obtained thus far should stimulate continued interest in and expansion of both activities.

In addition to these programs, a new program was begun in 1964. A grant from the North Carolina Dairy Foundation made possible the initiation of the Electronic Dairy Farm Records Program. Increasing production costs relative to prices received for milk, excessive use of credit and lack of complete cost accounting records have resulted in financial distress for many dairymen in the state. The dairy records program was designed to assist producers in obtaining better business management control over their operations.

Farmers participating in the program keep detailed records on their entire farm operations. These records are analyzed monthly and on an annual basis in the Dairy Records Processing Center. The results of these analyses greatly aid the farmer in making decisions with respect to adjustments needed for a more profitable business. Seventy farmers participated in the program in 1964 and about 150 are participating in 1965. The program has been received with enthusiasm and it is believed that it will make a substantial contribution to increased efficiency of dairy farmers in the state.

Table 49. Summary of DHIA Test Program, North Carolina, 1945-1965

Year	Number of associations	Number of herds			Cows milked[a]			DHIA herds		
		All Grade A	DHIA Jan. 1	Percent on DHIA	All cows (1,000)	DHIA test	Percent on DHIA	Average number cows per herd[b]	Average pounds milk per cow	Pounds of butterfat per cow
1945	7	-	104	-	400	4,132	1.0	39.7	7,545	337
1946	6	-	79	-	384	3,100	.8	39.2	7,798	334
1947	11	-	141	-	376	4,676	1.2	33.2	7,291	321
1948	17	2,008	181	9.0	376	5,751	1.5	31.8	8,048	339
1949	18	2,633	201	7.6	361	6,226	1.7	31.0	7,799	340
1950	19	3,597	283	7.9	361	8,403	2.2	29.7	8,076	341
1951	21	4,159	265	6.4	372	9,075	2.3	34.2	8,158	351
1952	24	4,425	298	6.7	367	10,092	2.7	33.9	8,126	337
1953	30	4,742	418	8.8	376	13,654	3.5	32.7	8,030	326
1954	33	5,189	456	8.9	370	15,387	3.8	33.7	8,197	331
1955	35	5,167	494	9.6	346	16,979	4.3	34.7	8,295	335
1956	34	4,974	510	10.3	324	18,443	5.0	36.2	8,466	338
1957	38	4,762	563	11.8	312	21,043	5.9	37.4	8,850	351
1958	41	4,525	607	12.9	292	23,954	6.8	39.5	8,822	348
1959	41	4,315	626	14.1	279	25,892	7.4	41.4	8,957	350
1960	43	4,096	702	16.7	275	32,084	9.2	45.7	9,095	353
1961	46	3,925	729	18.1	266	34,915	13.1	47.9	9,550	368
1962	47	3,715	777	20.1	256	37,652	14.7	48.5	9,925	380
1963	53	3,412	820	21.3	250	42,845	17.1	52.2	10,615	403
1964	53	3,170	799	24.3	242	42,913	17.7	53.7	11,320	427
1965	55	3,071[c]	788	25.5	-	44,281	-	56.5	-	-

[a]All cows kept for milk 2 years old and over (average for 12 month period).

[b]All herds enrolled in DHIA program.

[c]Reported as of March 1.

Source: Extension Staff, Dairy Husbandry, North Carolina State University, Raleigh.

Table 50. Summary of artificial breeding program, North Carolina, 1946-1964

Year	Number of associations	Number of counties served	Cows bred	
			Number	Percent[a] of total
1946	1	1	663	.2
1947	3	3	1,050	.3
1948	34	39	16,073	4.6
1949	50	55	27,531	8.1
1950	56	63	34,424	9.8
1951	63	75	42,421	11.9
1952	65	81	43,843	11.8
1953	65	74	46,623	12.4
1954	61	72	45,368	12.3
1955	58	70	46,458	13.4
1956	60	80	53,151	16.4
1957	59	80	60,360	19.3
1958	62	81	71,255	24.4
1959	63	81	80,234	28.8
1960	63	85	82,495	30.0
1961	65	85	84,000	31.6
1962	74	85	89,860	35.1
1963	66	100[b]	83,849	33.5
1964	55	100[b]	92,887	38.4

[a]Percent of all dairy cows excluding heifers not fresh.

[b]Some counties served by private distributor technicians.

Source: Extension Staff Dairy Husbandry, North Carolina State.

Poultry and Eggs

Production of poultry and eggs makes up the third largest segment of agriculture in the state at the farm level. Total receipts from the sale of all poultry and poultry products averaged $130 million per year from 1952-1962, or 13 percent of receipts from the sale of all farm products. Broilers and eggs contributed the major portion to the income from this industry. Chickens, consisting largely of old hens sold from laying flocks, were of minor importance but, combined with eggs, the total cash receipts amounted to $59.6 million per year (1952-1962). Receipts from the sale of all poultry and eggs increased about 3.3 percent in 1963 over 1962.

Broilers

Production of commercial broilers is considered one of the most rapidly expanding farm enterprise in the state which now ranks fourth in the nation in total output. The increase in number produced since 1940 is almost fantastic -- 4.4 million birds produced in 1940 compared to 215.3 million birds in 1963. Total pounds produced has increased in even greater proportion because of the heavier weight to which birds are fed for market (Table 51). Gross income from marketings showed a tremendous increase despite the somewhat odd manner in which the price pattern has behaved. The value of production increased from $1.9 million in 1940 to $103.2 million in 1963.

Prices began an upward trend in 1940 to a peak of 34.7 cents per pound in 1948. Since then the price has declined steadily but with only minor variations between years (Figure 33). Naturally, the margin of profit to producers has decreased, but there have been some off-setting features in the cost-price relationship. Inputs per unit of output have decreased. For example, the amount of feed has decreased from over 4 pounds to approximately 2.25 pounds of feed per pound of liveweight broiler meat. Increase in the size of broiler producing units has contributed to greater production efficiency.

Improvements in the processing of broilers also have added to increased efficiency in the industry. Approximately 40 plants in the state are using the continuous conveyor system with a bird-per-hour processing rate ranging from 1,200 to 12,000 birds. Plant numbers have been decreasing and the average size of plants has been increasing in recent years. Total processing capacity has been maintained at fully adequate levels as broiler production increased.

About three-fourths of the state's total broiler production is shipped to points outside North Carolina. Best markets are generally to the northern and northeastern markets. The marketing area is a triangle with Charlotte, Detroit and Boston at the extreme points.

Another feature of the broiler industry is that it has become highly integrated between producers, hatcheries, feed dealers and processors. Almost all of the broilers in the state are produced under contract. Hatcheries, which often are closely allied with the feed industry, exert considerable influence on the number of birds produced and in maintaining a fairly uniform flow of birds into market channels. This is accomplished by planning the placement of chicks with producers under contract.

Producer contracts greatly reduce the risks taken by producers. Contract rates are set to cover little more than the cost of labor and for the facilities required for production on the farm. Most of the

Table 51. Commercial broilers: Production, price and income, North Carolina, 1940-1964

Year	Number produced	Average live weight per bird	Pounds produced	Price per pound	Gross income
	(thous.)	(pounds)	(thous.)	(cents)	(thous. dol.)
1940	4,400	2.6	11,440	17.0	1,945
1941	6,160	2.7	16,632	18.0	2,994
1942	9,000	2.7	24,300	21.0	5,103
1943	13,500	2.8	37,800	28.3	10,697
1944	13,000	2.8	36,400	28.2	10,265
1945	17,940	2.9	52,026	29.7	15,452
1946	14,711	2.9	42,662	32.3	13,780
1947	16,182	2.8	45,310	32.9	14,907
1948	18,286	2.9	53,029	34.7	18,401
1949	23,040	2.8	64,512	26.9	17,354
1950	28,109	2.8	78,705	26.3	20,699
1951	32,606	2.8	91,297	27.9	25,472
1952	43,366	2.8	121,425	28.4	34,485
1953	50,738	2.9	174,140	26.3	38,698
1954	58,349	2.9	169,212	22.4	37,903
1955	72,936	3.0	218,808	24.2	52,952
1956	94,087	3.1	291,670	18.9	55,126
1957	106,352	3.1	329,691	17.9	59,015
1958	134,600	3.3	444,180	17.6	78,176
1959	137,400	3.3	453,420	15.2	68,920
1960	156,600	3.3	561,780	16.0	82,685
1961	186,354	3.4	633,604	13.0	82,369
1962	203,126	3.4	690,628	14.3	98,760
1963	215,314	3.4	732,068	14.1	103,222
1964[a]	213,161	3.5	746,064	13.6	101,465

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

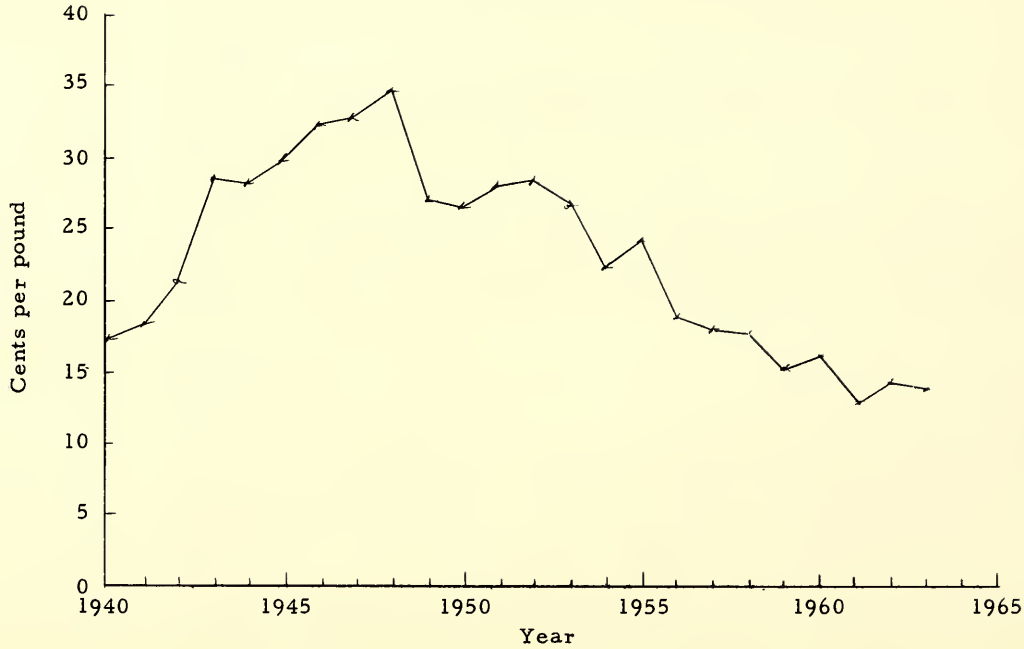

Figure 33. Average price of broilers, North Carolina, 1940-1963

management decisions with respect to time of starting, feeding practices and marketing are made by firms who have production and marketing contracts with their producing clientele.

If present trends can be considered indicative of the economic opportunities in broiler production in the state, there is reason to expect a modest growth at the rate of 4 or 5 percent per year. This assumes that North Carolina will continue to hold its relative position in the national market.

Egg Production

The production of eggs in North Carolina has been increasing, both in number of layers and number of eggs laid per hen. Cash receipts from eggs averaged about $54.4 million annually from 1952 to 1962 or about 41.8 percent of total receipts from the sale of all poultry and poultry products. Estimated sales in 1963 amounted to about $72.5 million and $73.2 million in 1964.

A summary of egg production, sales and average price is presented in Table 52. There has been a gradual shift from small flocks on farms where production of eggs was considered only as a supplementary source of income to more large and highly specialized producing units. Larger capital outlay is required; but with increases in the level of management, greater feeding efficiency, and use of labor-saving techniques, overall production efficiency has been increased considerably.

The present rates of production exceed the supply needed by consumers in North Carolina. It is estimated that a population of 4.6 million would require about 6.9 million layers to provide them eggs at the present rate of consumption. The average number of layers was 11.1 million in 1964. See Figure 34 for a comparison of laying hens and eggs produced in the state. As North Carolina moved into a position of having a surplus of eggs, producers were faced with the problem of competing for access to out-of-state markets. It is estimated that 25 to 30 percent of our commercial eggs are shipped out of the state.

Marketing eggs presents some difficulties, primarily in the assembly process, because of the need to supply the large market outlets with the quantity demanded and a steady supply. The problem arises where a number of small producers may be scattered over a large area and with an output too small to compete effectively in the large markets even within the state. Small producers in a given area might gain some advantage by pooling their eggs so as to enable them to bid for the larger market outlets. This practice would be advantageous to receivers and distributors in that a more adequate volume and steady supply would be available.

Table 52. Egg production, North Carolina, 1940-1964

Year	Avg. no. layers during year	Eggs laid annually per hen on farms	Total eggs produced	Eggs sold	Average price per doz.
	(1,000)	(number)	(mil.)	(mil.)	(cents)
1940	5,923	113	672	364	19.9
1941	5,946	118	701	396	24.4
1942	6,560	120	786	481	28.9
1943	7,512	121	911	601	36.3
1944	7,950	121	958	620	33.9
1945	8,159	130	1,064	726	40.4
1946	8,141	132	1,073	725	41.6
1947	8,125	138	1,122	795	48.0
1948	7,700	145	1,119	805	50.3
1949	8,047	152	1,226	908	48.6
1950	8,257	155	1,276	963	40.0
1951	7,990	156	1,245	960	53.0
1952	8,214	161	1,320	1,044	47.0
1953	8,277	163	1,349	1,081	51.8
1954	8,356	175	1,460	1,202	44.0
1955	8,143	180	1,469	1,206	45.2
1956	8,899	189	1,681	1,411	44.2
1957	9,405	195	1,830	1,556	42.8
1958	9,797	196	1,922	1,662	46.8
1959	10,137	203	2,061	1,809	37.7
1960	9,894	206	2,035	1,797	42.0
1961	10,210	207	2,115	1,922	41.2
1962	10,838	213	2,304	2,140	39.6
1963	10,960	212	2,324	2,181	39.9
1964[a]	11,074	216	2,388	-	-

[a]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

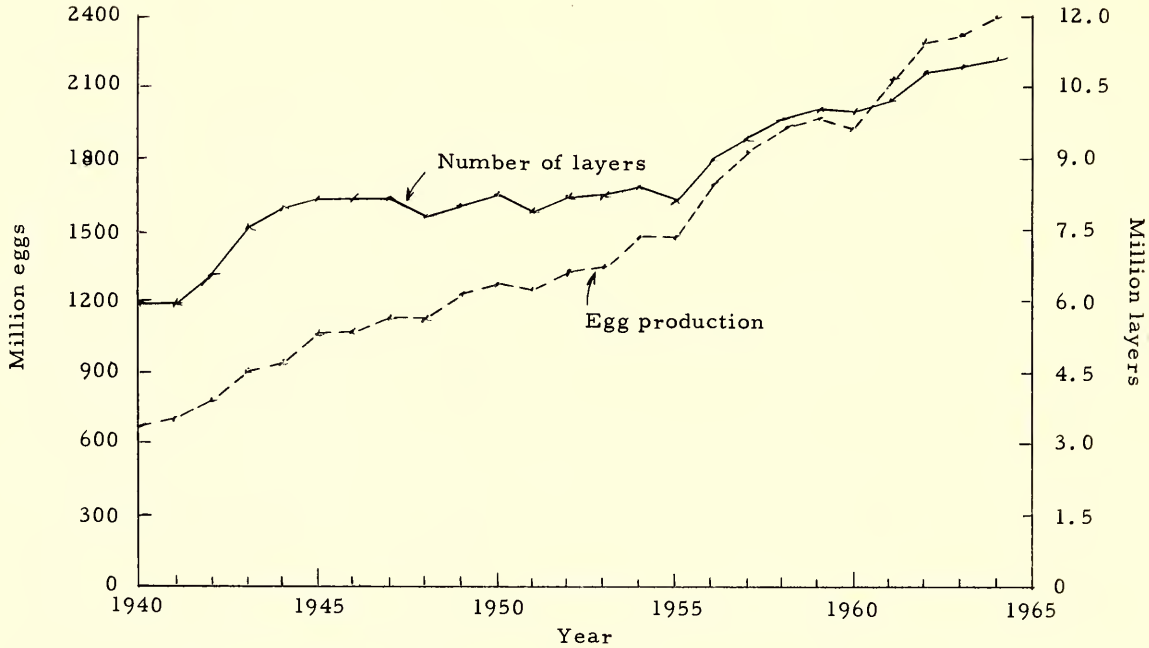

Figure 34. Trend in egg production, North Carolina, 1940-1964

This has been accomplished to some extent by setting up egg receiving stations throughout the state. In the meantime many producers are selling eggs locally for a spread of 7 to 12 cents between the farm and the retail outlet. However, the competition is so keen in this area that the spread may drop to as low as 6 to 9 cents per dozen.

Market facilities appear to be adequate in North Carolina. There are more than 400 firms handling eggs either as receivers or distributors. As indicated above, some eggs are marketed directly to milk plants, chain stores and meat packers, but the movement is more toward the larger assembly centers. There are 33 firms in the state which handle 400 or more cases of eggs per week.

The average price of eggs has been erratic. The trend was rather sharply upward from 1940 to 1948 followed by a sharp drop 1948-1950. Following the high point of 53 cents in 1951, there has been a slight downward trend with considerable variation between some years (Figure 35). This variableness does not give any clear indication of how prices are likely to behave in the future. Two important factors can exert considerable influence upon the egg market in general -- population growth and an increase in per capita consumption which has declined in recent years.

If production of eggs is expanded, it must be done to the extent and in such a manner as to permit surplus North Carolina eggs to have a reasonably equitable competitive status with surplus eggs produced in other areas. To accomplish this effectively may require a strong organization of egg producers and handling firms to foster orderly growth and promotional sales activity.

Continued expansion without gaining a larger share of out-of-state markets may result in a further drop in the downward trend in prices of recent years. In this case, producers must strive for increased production efficiency to achieve lower costs per unit of output. Even so, a continuing narrowing in the cost-price margin can force many inefficient producers out of the business.

Per capita consumption of eggs has declined in about the same proportion as increase in population so that total consumption has shown only a very slight increase. Thus, for all practical purposes, it must be assumed that any area which increases production can find room for additional surpluses in the market sphere by forcing producers in competitive areas out of the industry. This can be done by accepting prices lower than variable costs of producers in competing areas. Such shifts cannot be achieved very rapidly in the shortrun and leaves producers in North Carolina in an uncertain position with respect to any large expansion in the near future. Although there may be some increase in production, this increase is most likely to occur on farms with large and efficiently operated units.

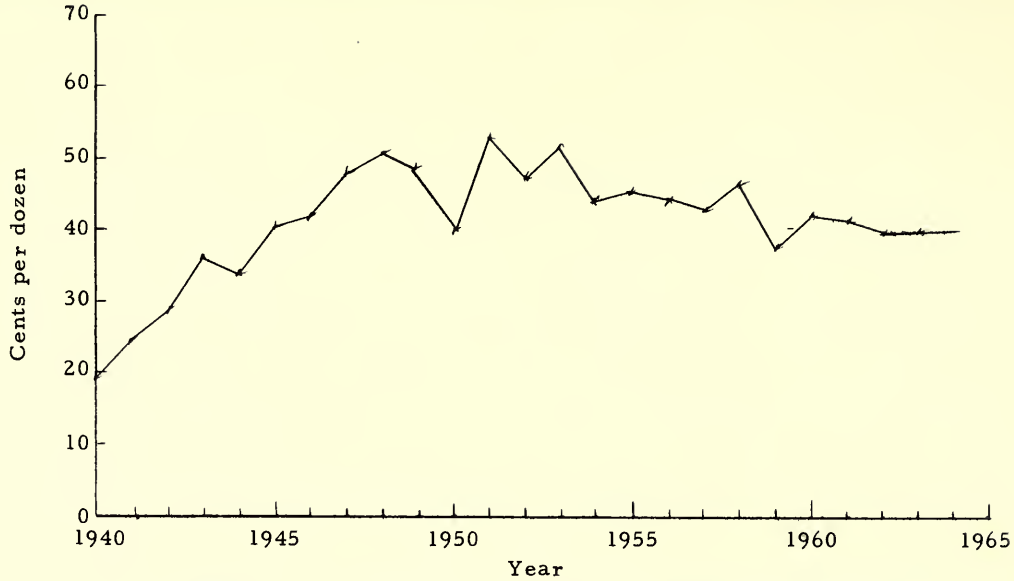

Figure 35. Average price of eggs, North Carolina, 1940-1964

Turkeys

Production of turkeys has not been considered a major enterprise in the poultry industry in North Carolina although the state was ranked 11th in the United States in total production in 1962. Production has been increasing rapidly in recent years and has become a very important source of income in a number of counties. The heaviest concentration is found in a group of southeastern counties extending generally eastward from Union County to Duplin County. Estimates show that the 10 largest producing counties in this area increased production about 54 percent from 1962 to 1964 and accounted for about 85 percent of the total production in the state in 1964.

The average cash receipts from sales during the period 1952-1962 was about $7.7 million per year. Sales ranged from about $5.5 million in 1953 to $11.6 million in 1963. The estimated sales in 1964 was approximately $17.4 million.

A summary of turkey production in the state is presented in Table 53. Complete and reliable data for some items are not available and, in some cases, have been estimated. There has been a rather sharp upward trend in production with very large increases in recent years. Turkey production has become a highly commercialized and, in many cases, specialized enterprise. Many of the growers of small flocks have gone out of business. Most of the expansion has resulted from the increase in the number of large growers most of whom produce two or more flocks per year. Most of the large growers have their own feed mills and, in some cases, hatch their own poults.

The data available on number of turkeys raised and sold do not distinguish between flocks kept primarily for production of hatching eggs and flocks sold for table use. On some farms there are combinations of both. A few producers have adopted small breeds such as the Belksville White, but these are in a minority compared to production of the heavier broad breasted type of birds. Also, some turkeys are sold as broilers or fryers. Consequently, the average pounds sold and average price does not present a clear picture of the turkey industry but the number produced gives some indication of the extent to which turkey production has expanded.

There was a rather sharp upward trend in average price until 1948. This was followed by a gradual decline from a high of 45.4 cents per pound (1948) to 26 cents per pound in 1960. The average for the years 1961-1964 was about 22 cents per pound.

Prices vary for different weight birds and at different seasons of the year. Data are not available to indicate the amount of seasonal price variation but it has been reduced in recent years.

Table 53. Number of turkeys produced, sold and average price, North Carolina, 1940-1964

Year	Number produced	Number sold	Average price/lb.	Pounds sold	Cash receipts from sales
	(1,000)	(1,000)	(cents)	(1,000 lbs.)	(1,000 dols.)
1940	234	226	18.8		628
1941	234	210	22.4		701
1942	261	258	27.0		1,017
1943	235	234	35.2		1,236
1944	284	263	34.9		1,377
1945	371	354	36.4		2,023
1946	416	395	41.0		2,686
1947	376	368	39.1		3,389
1948	357	339	45.4		2,601
1949	483	457	36.4		2,845
1950	555	535	38.1	9,035	3,442
1951	780	752	39.2	13,310	5,218
1952	1,016	998	36.4	17,066	6,218
1953	1,107	1,081	35.4	17,728	6,276
1954	1,207	1,193	31.0	21,474	6,657
1955	1,051	1,031	30.9	18,352	5,671
1956	1,293	1,251	29.9	22,768	6,840
1957	1,824	1,787	25.0	31,272	7,808
1958	1,718	1,693	27.3	29,797	8,250
1959	1,677	1,672	26.5	30,431	8,065
1960	1,796	1,701	26.0	32,149	8,359
1961	2,765	2,762	22.7	51,926	11,787
1962	2,339	2,323	21.7	45,066	9,779
1963	2,721	2,664	21.8	51,682	11,267
1964[a]	4,451	4,403	21.9	79,254	17,357[b]

[a]Preliminary.

[b]Estimated.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

Production of turkeys is now carried on throughout the year rather than on a seasonal basis as in former years. Large quantities are stored during peak processing periods. Also, consumers are buying more turkeys throughout the year than when they were primarily in demand during traditional holiday seasons.

Despite the decrease in average price, turkeys can be a profitable enterprise. Improved technology and use of better management practices has enabled efficient producers to maintain a satisfactory profit margin. However, successful production of turkeys is very exacting and requires a high level of management.

Expansion in turkey production has been at a somewhat slower rate than in the case of broilers. One reason was the difference in patterns of production and consumption. Another reason was the higher capital requirements for turkeys, including fixed and variable costs. Also, the longer production period from the hatching egg flocks to the time birds are ready for market introduces a higher element of risk in turkey production.

Future expansion of turkey production appears fairly promising. Producers have gained some advantage by reduction in freight rates on feed shipped into the state. This is very important to turkey producers because of the large quantity of feed required in the production process. There is an increasing tendency toward closer integration between hatcheries and feed dealers, and farm production. For the most part, feed manufacturing firms in North Carolina are feeding the bulk of North Carolina turkeys and they have been very aggressive in promoting turkey production. Improvements have been made in processing and marketing turkeys. Data on production costs indicate North Carolina producers are in a very favorable position for meeting competition with other areas. It has been estimated that there are existing market facilities ample to take care of an additional two million turkeys in North Carolina. It appears, therefore, that the opportunities are reasonably good for profitably expanding turkey production in North Carolina.

An increasing number of the turkeys produced in North Carolina are being raised under contractual arrangements between the grower and suppliers of production factors (poults, feed, etc.) and/or processing plants. It is estimated that about one-half of the five million turkeys expected to be produced in the state in 1965 will be produced under some type of contractual agreement.

There are definite indications that firms outside the state (Breeders, Producers and Processors) are considering North Carolina as a base for expanding their operations in the Southeast. An increase in production of two million turkeys per year in the state could add $7 to $8 million to our gross farm income, generate a feed cost outlay of $5 to $6 million dollars plus the value of other production factors and services associated with the production of turkeys - an estimated increase in gross agribusiness of $25 to $30 million per year. The value of turkeys produced in the state in 1964 was 50 percent greater than in 1963.

THE FORESTRY INDUSTRY IN NORTH CAROLINA[16]

Forestry has played an important and interesting part in the development and economic growth of North Carolina. Yet, it is seldom placed in the same category with other farm enterprises as a source of income. In fact, it has often been labeled as the most neglected enterprise on the farm. It has been pointed out that North Carolina is a state of varied resources which affect the everyday life and well-being of most of the people. No single resource is a separate entity in the economic structure of the state because the development and use of one inevitably affects the others. This is particularly true of forest resources which have a significant influence upon agriculture, industry, employment, finance, transportation, water resources and electric power production.

Forests have been a source of revenue and employment to the people of North Carolina since the first white settlement in the state. As early as 1750, longleaf pine lumber was exported from Wilmington to the West Indies and England. About 1880 large-scale logging operations began in the virgin longleaf pine stands of the Coastal Plain and in less than 20 years most of them were cut out. About 1900 the lumber industry turned to the loblolly and shortleaf pine stands of the Upper Coastal Plain and Piedmont where operations have continued ever since. Commercial lumber operations were not important in the Piedmont because most of the virgin timber was destroyed by early settlers in clearing land for agricultural use. Much of the cutover land reverted to forest growth with little or no utility value.

From 1900 the cut of all species was gradually increased including hardwoods in the mountain areas. By 1909 the annual cut rose to about 2 billion board feet and reached a peak of nearly 2.3 billion feet in 1914. With a large part of the rich accumulation of virgin timber gone, the forest industries began adjusting requirements to periodic yields of second-growth timber which enabled them to continue to flourish despite the somewhat inferior quality of the second growth.

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[16] Sources: Information contained in this section was furnished by members of the staff in the School of Forestry, North Carolina State University. Special credit is due Mr. Walter M. Keller who assisted in assembling the data used in preparing the report. Specific references include: (1) North Carolina Forest Resources and Industries, Forest Service, USDA, Misc. Publication No. 533, January, 1944; (2) North Carolina's Timber Supply, 1955, Forest Survey Release No. 49, Forest Service, USDA, March, 1957; (3) Timber in North Carolina, Forest Resource Report No. 15, Forest Service, USDA, January, 1959; Timber Trends in the United States, Forest Service, USDA, Forest Resource Report No. 17, February, 1965.

In 1938 the standing saw-timber volume was nearly 44 billion board feet. This amounted to about 11 percent of the timber in the South and 3 percent of that in the nation. Thirty-seven percent of the total was loblolly pine.

This brief historical background of the forest industry focuses attention upon the need for conservation and development of our timber resources through a more scientific approach in restoring our depleted forest lands, use of recommended woodland management and better harvesting practices. To emphasize the importance of a sound forestry program, it was estimated that, in 1962, 187 million Americans used 11.8 billion cubic feet of timber. Projections indicate that by 1980, 241 million Americans will need approximately 15.4 billion cubic feet and, by 2000, the need may increase to 21.3 billion cubic feet for an estimated 325 million population. The estimates of future population may be conservative so that needed timber cut could be higher than the estimates given here.

As timber needs increase, the nation must look to eastern states such as North Carolina for a larger share of the cut. Because of location and favorable growing conditions North Carolina should take advantage of the economic opportunity to grow more timber in the future with emphasis upon quality to meet the needs of wood using industries. The demand for high quality pine timber will continue at a high level, but there will be a rapidly increasing demand for quality hardwoods.

Data on timber resources in the state are somewhat sketchy because of the long intervals between surveys. A new survey is underway at present but the last complete survey was made in 1954. Table 54 shows the general trend in ownership and forest land area of the state. Because of differences in definition and classification of ownership, the data for the three periods shown are not entirely comparable but the totals indicate some increase in woodland area.

Census data show a somewhat different picture of farm woodland in the state as indicated below:[17]

Year	Pastured	Not pastured	Total
	(thousand acres)		
1945	1,092.9	8,106.2	9,199.1
1950	1,422.8	8,273.4	9,696.2
1954	1,506.1	7,732.8	9,238.9
1959	1,024.4	6,724.4	7,749.8

[17] U. S. Census of Agriculture, 1959, U. S. Government Printing Office, Washington.

Table 54. Ownership of commercial forest land, North Carolina

Class of ownership	Commercial forest land		
	1935	1944	1954
		(thousand acres)	
Public land:			
National forests	952.7	965.8	1,046.6
Other federal	476.4[a]	396.6	283.6
Total federal	1,429.1	1,362.4	1,330.2
State, county and municipal	328.3	270.6	1,618.8
Private land:			
Farm	10,094.7[b]	9,093.4	13,268.7
Other	6,547.7[c]	7,810.1[d]	4,453.9
Total private	16,642.4	16,903.5	17,722.6
Total all classes	18,399.8	18,536.5	19,341.4

[a]Includes national parks, wildlife refuges, Indian and military reservations. Total public lands in 1941 was 1,760,000 acres.

[b]1935.

[c]Includes industrial and investment owners (1938); power companies, hunting preserves and other (estimated).

[d]Includes industrial holdings.

These data should not be construed as meaning that the total forest land of the state is decreasing since they only represent holdings on farms classified as such by census definition. However, they indicate some of the potential for increasing farm income through use of recommended forest management practices. In addition, nearly a million acres of cropland not harvested or pastured are reported for the years given. These acres might be utilized profitably by planting with adaptable species of trees.

Planting is becoming increasingly important as a supplement to natural regeneration. Unscrupulous cutting practices in the past have retarded replenishment of our forest resources through the natural process of reseeding. Table 55 shows the extent of forest planting in the state for the period 1926-27 to 1963-64. Based upon an average of

Table 55. Forest tree seedlings distributed by planting seasons from North Carolina state forest nurseries, 1926-27 to 1964-65

Year	Number	Year	Number
1926-27	31,000	1946-47	3,029,714
1927-28	184,818	1947-48	5,933,039
1928-29	283,982	1948-49	6,468,260
1929-30	308,787	1949-50	9,234,000
1930-31	365,425	1950-51	8,288,820
1931-32	249,806	1951-52	12,805,310
1932-33	242,482	1952-53	11,402,705
1933-34	435,608	1953-54	16,776,184
1934-35	1,018,444	1954-55	24,402,645
1935-36	3,073,465	1955-56	35,909,087
1936-37	928,072	1956-57	57,471,000
1937-38	2,489,741	1957-58	83,760,583
1938-39	2,345,500	1958-59	98,000,000
1939-40	2,519,542	1959-60	83,000,000
1940-41	3,869,980	1960-61	67,000,000
1941-42	1,832,200	1961-62	43,000,000
1942-43	1,031,000	1962-63	40,650,000
1943-44	442,510	1963-64	39,450,000
1944-45	523,890	1964-65	35,527,000
1945-46	1,707,900	TOTAL	705,992,000

1,000 seedlings per acre, approximately 705,992 acres of land have been planted in trees during the period shown. The bulk of these seedlings were distributed to farmers and consisted primarily of loblolly pines. The large increase beginning in 1956-57 coincides with the initiation of the Soil Bank Program. Farmers under contract with ASCS were provided some financial assistance in making plantings which encouraged many farmers to convert diverted acres to woodland use and to look upon farm forestry as an integral part of the farm organization.

When considering adoption of forestry as a definite farm enterprise, growers need some basic information for determining expected revenue to be gained. Table 56 provides data indicating expected growth rates for predominant species in the three major geographic areas of the state. Table 57 can be used as a guide in determining the income that can be expected from an acre of loblolly pine grown under average conditions (site index = 80). It is assumed that average management practices are followed and no serious hazards such as fire, insect and disease

Table 56. Calculated timber yields at various ages for predominant species by geographic areas, North Carolina

Species	15 years		20 years		30 years		40 years		50 years	
	Cords	Board ft.	Cords	Board ft.	Cords	Board ft.	Cords	Board ft.	Cords	Board ft.
COASTAL PLAIN - Average site										
Loblolly	14	135	22	2,700	38	10,000	51	16,700	60	22,600
Slash	24	1,000	31	2,700	44	8,800	53	14,900	60	19,000
Longleaf	4	--	7	250	17	2,200	24	4,500	30	7,600
PIEDMONT - Average site										
Loblolly	13	75	18	1,800	33	9,000	45	16,500	53	22,000
Shortleaf	--	--	10	--	30	2,500	43	8,500	52	15,000
MOUNTAINS - Average site										
White pine	12	--	21	--	43	9,600	64	23,500	100	36,600
Shortleaf	--	--	12	--	32	3,000	46	9,800	54	17,200
Virginia pine	13	--	22	--	41	14,700	56	20,400	66	25,100
Upland oak	--	--	3	--	13	1,300	22	4,300	30	8,000
Yellow poplar	3	--	6	--	14	2,300	22	6,000	29	10,000

Table 57. Examples of predicted returns from growing fully stocked crops of Loblolly pine on land of given productivity ratings

Age at which crop is clearcut[a]	Returns based on yields of natural stands grown without any thinning harvests							
	Site index 60[b]		Site index 70[b]		Site index 80[b]		Site index 90[b]	
	All trees in pulpwood	Sawtimber and pulpwood	Pulpwood	Sawtimber and pulpwood	Pulpwood	Sawtimber and pulpwood	Pulpwood	Sawtimber and pulpwood
	(dollars)							
20	65	--	86	--	109	--	138	185
30	107	--	141	224	179	312	223	467
40	135	196	177	315	224	470	278	704
50	155	247	201	406	254	576	314	850
60	169	293	218	478	275	677	338	1005

[a] Clearcut means all merchantable timber removed.

[b] Site index - total height the dominant tree will reach at 50 years of age on a specific site.

damage occur. Calculations are based upon an average stumpage price of $5 per cord for pulpwood and $35 per thousand board feet for saw timber.

In order to determine approximate net returns that can be expected, expenses such as cost of seedlings, labor, taxes and incidental expenses must be subtracted from the gross return. The difference would represent return to land and management. Generally the rotation ranges from 35 to 50 years. This means that a full cut at the end of the optimum growth period would have to be followed by a new planting. Using the data in Table 57 and assuming the optimum growth period to be 40 years, the gross return per acre would be $470 or an average of $11.75 per year. After this point average returns per year begin to decrease slightly.

Tables 58 and 59 provide some indication of the growth of the forestry industry in North Carolina. Saw timber and pulpwood make up the largest portion of forest products. Other uses include veneer, poles and piling, cooperage, cross ties, etc. As shown in Table 58, harvest of pulpwood has increased rapidly, particularly since 1950. Some of this growth can be attributed to the large acreage of plantings made over the past 38 years. In addition to the interest stimulated by educational activities of various agencies of federal and state governments, a great amount of promotional work has been carried on by large pulp and paper companies located in the state.

Lumber production also has flourished and shown a remarkable record of sustained output for the past 75 years (Table 59). The peak year of production was 1914 when 2-1/4 billion board feet of lumber was produced in North Carolina. Over the past 75 years production in the state has averaged about 1-1/2 billion board feet and output per year is increasing. This makes it the leading lumber-producing state east of the Rocky Mountains and fourth in the nation, behind only Washington, Oregon and California. The bulk of lumber production in the state has consisted of southern yellow pine (loblolly).

Detailed data are not available on the extent to which forestry has contributed to the economy of the state. However, the following estimates indicate the amount of gross income received from sale of forest products (stumpage price):

1961	$83,943,573
1962	88,109,140
1963	95,309,563

A tremendous amount of additional income is generated in the state through the manufacture of wood products, especially furniture, construction, and other activities connected with fabricating wood products. For example, in 1961 the total value of all wood products

Table 58. Production of pulpwood, North Carolina, 1939-1963

Year	Amount	Year	Amount
	(1,000 cords)		(1,000 cords)
1939	604.6	1952	1,332.0
1940	534.0	1953	1,528.9
1941	788.8	1954	1,507.0
1942	730.2	1955	1,574.0
1943	721.1	1956	1,922.3
1944	726.7	1957	1,865.9
1945	667.8	1958	1,896.1
1946	709.8	1959	2,145.8
1947	765.2	1960	2,273.6
1948	926.2	1961	2,292.0
1949	802.1	1962	2,324.0
1950	1,024.0	1963	2,390.0[a]
1951	1,304.6		

[a]Estimated.

Table 59. Lumber production in North Carolina by selected years, 1889-1963

Year	Million board feet
1889	670
1899	1,287
1905	1,081
1910	1,825
1920	1,450
1925	1,708
1930	815
1935	685
1940	1,377
1945	1,650
1950	1,800
1955	1,600
1963	2,000[a]

[a]Estimated.

processed in North Carolina exceeded $1,250 million. This was the first time the state had passed the billion dollar mark and the only state east of the Mississippi to do so.

The future of the forestry industry in North Carolina appears bright. Farmers can obtain a major share of the benefits to be gained from growth of the industry since they are in a position to provide the biggest share of future timber needs if the forest enterprise is given the attention required for profitable production. However, there are certain problems which must be dealt with.

There are slightly over 190 thousand farms in the state averaging about 83 acres with 25 acres of cropland and 41 acres of woodland.[18] With such a small acreage of cropland it is questionable whether a farmer would consider planting any part of it in trees. However, this does not preclude replanting cutover woodland and improving areas that have reseeded naturally.

There are roughly 3 million acres of cutover land or land covered with worthless undergrowth and trees. These acres are potential pine-producing land if undesirable growths can be removed. Unfortunately, this can be accomplished only by use of heavy equipment and/or chemicals. This process referred to as "site preparation" involves a cash outlay of $30 to $50 per acre, including seeding, and presents a real economic problem. The cost of preparation reduces expected net returns and small farmers are both unable and unwilling to tie up such a relatively large amount of capital in such a long-time investment. Without some practical method of providing assistance in financing costly site preparation, a formidable barrier against any sizeable increase in tree-planting activity on small farms will continue to exist.

Another problem involves reduction of destructive agents in timber production such as fire, disease, insects, etc. It has been estimated that lack of reasonable controls against such hazards can result in a growth loss of over 400 million board feet per year. Although it is not possible or practical to eliminate all timber losses, a 30 percent decrease could mean an annual saving of about 160 million board feet of pine sawtimber. Consideration also should be given to more complete utilization of residue from timber harvest operations such as tops and cull sections left in the woods after sawlog operations and unused residue at mills.

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[18] U. S. Census of Agriculture, 1959, U. S. Government Printing Office, Washington.

Although timber growth in the state at present exceeds the annual cut, the margin is narrowing, particularly in the species preferred for saw-timber. In order to meet expected increase in demand, the ratio of growth to increased cuttings must be widened. North Carolina cannot afford to lose any part of the present income from forestry amounting to over $95 million annually, but rather efforts in research and education should be intensified to promote the development of the potential for increasing income from this source.

INCOME AND EXPENDITURE CHARACTERISTICS

There are numerous measures of income that can be used to indicate economic growth in a given area. Also, there are many factors contributing to changes in the economic structure, including technology, relationships between different segments of the economy within an area and between areas, and the general socioeconomic environment of the population.

One measure of income to the farmer which has been referred to frequently in previous sections is the amount of cash receipts from the sale of products produced on the farm. Table 60 is a summary of cash income received by North Carolina farmers from 1952 to 1963.[19] These figures represent returns to all of the factors of production required in various combinations to produce each kind of product marketed. They indicate the relative importance of all the major production activities on farms which contribute directly to the economic welfare of farm people.

Total cash farm income has shown some upward trend although there are some variations between years. For the period, 1952-1962, there were six years below the average of $1.1 billion per year with two of these years closely approaching the billion dollar mark. The so called "bad years" resulted mainly from forces beyond the control of the individual farmer such as adverse weather conditions and changes in market conditions for individual commodities. Fluctuations in acreage of crops under allotments contributed to some variation in the annual income.

Another measure of income is gross income, including government payments and value of products consumed on farms where produced (Table 61). Value of home consumption has decreased in recent years and has shown a very marked decline relative to the total

[19] Data for 1963 are preliminary and not included in the averages referred to in the text for various commodities or groups of commodities.

Table 60. Summary of total cash farm receipts, North Carolina, 1952-1963

Commodity	1952	1953	1954	1955	1956	1957
			(thousand dollars)			
Crops:						
All tobacco	457,633	457,033	497,287	533,701	507,247	369,642
Cotton and cotton seed	128,058	92,329	76,604	58,531	59,860	46,080
Peanuts	33,283	35,956	31,695	24,716	32,993	28,661
Irish potatoes	8,649	3,879	6,118	4,219	8,973	3,862
Sweet potatoes	4,525	5,158	4,100	3,565	2,878	4,504
Corn	15,827	11,435	9,942	23,481	34,772	31,882
Small grains[a]	16,858	18,955	18,083	14,510	21,248	14,351
Vegetable crops[b] (truck)	11,517	11,590	9,430	9,023	9,346	12,323
Fruits, nuts & berries	9,296	6,149	7,696	1,291	7,401	8,884
Soybeans	11,486	9,506	13,892	9,490	16,639	14,173
Hay	2,976	2,957	2,600	2,779	2,127	2,731
Miscellaneous crops	8,213	7,403	7,076	4,155	4,343	3,220
Forest, greenhouse & nursery crops	23,900	23,214	23,575	49,961	52,249	58,000
Total crop sales	732,221	685,564	708,098	739,422	760,076	598,313
Poultry:						
Chickens	7,474	5,873	5,460	5,286	5,115	4,086
Broilers	34,485	38,698	37,903	52,952	55,126	59,015
Eggs	38,971	44,721	44,073	45,727	52,009	54,641
Turkeys	6,218	5,475	6,657	5,671	6,840	7,805
Total sales	87,148	94,767	94,093	109,636	119,090	125,547

Table 60 (continued)

Commodity	1958	1959	1960	1961	1962	1963[c]
			(thousand dollars)			
Crops:						
All tobacco	438,214	420,109	523,385	557,011	563,417	546,599
Cotton and cotton seed	48,001	55,009	40,666	50,895	49,308	57,581
Peanuts	42,319	29,554	33,233	33,487	40,056	40,002
Irish potatoes	4,102	7,776	6,204	5,572	6,253	4,598
Sweet potatoes	4,296	4,066	5,824	7,373	7,726	7,695
Corn	36,174	41,169	46,225	36,923	33,086	41,642
Small grains[a]	14,321	18,182	15,586	20,529	14,063	12,715
Vegetable crops[b] (truck)	13,037	13,107	11,558	14,894	16,873	18,957
Fruits, nuts & berries	9,082	9,633	12,052	10,840	11,331	13,319
Soybeans	22,535	21,781	23,051	27,077	30,348	36,665
Hay	2,520	2,352	1,933	1,825	1,700	2,003
Miscellaneous crops	683	1,982	2,372	495	499	553
Forest, greenhouse & nursery crops	58,860	56,140	30,215	30,624	34,804	35,104
Total crop sales	694,144	680,860	752,304	797,545	809,464	817,433
Poultry:						
Chickens	4,888	5,979	4,645	4,934	4,372	5,872
Broilers	78,176	68,920	82,685	82,369	98,760	99,561
Eggs	61,386	56,833	62,895	65,989	70,620	72,518
Turkeys	8,250	8,065	8,359	11,787	9,779	11,563
Total sales	152,700	139,797	158,584	165,079	183,531	189,514

Table 60 (continued)

Commodity	1952	1953	1954	1955	1956	1957
			(thousand dollars)			
Livestock:						
Cattle and calves	15,949	18,359	21,600	24,625	22,966	25,895
Dairy products	52,172	56,359	54,417	56,746	58,950	62,490
Hogs	44,124	47,644	50,043	39,025	38,655	51,946
Other	3,214	2,513	3,226	2,760	3,419	3,141
Total sales	115,459	124,875	129,286	123,156	123,990	143,472
Total livestock and poultry sales	202,607	219,642	223,379	232,792	243,080	269,019
Total all sales	934,828	905,206	931,477	972,214	1,003,156	867,332
Government payments	6,790	3,926	6,107	7,292	10,515	26,439
Total cash farm receipts	941,618	909,132	937,584	979,506	1,013,671	893,771

Table 60 (continued)

Commodity	1958	1959	1960	1961	1962	1963[c]
			(thousand dollars)			
Livestock:						
Cattle and calves	33,675	36,375	34,376	33,144	36,253	31,593
Dairy products	63,117	64,366	66,332	68,342	70,041	72,229
Hogs	59,968	51,578	51,628	51,845	51,500	49,521
Other	2,578	3,491	3,112	3,501	3,453	2,627
Total sales	159,338	155,810	155,448	156,832	161,247	155,970
Total livestock and poultry sales	312,038	295,607	314,032	321,911	344,778	345,484
Total all sales	1,006,182	976,467	1,066,336	1,119,456	1,154,242	1,162,917
Government payments	37,538	10,625	12,829	32,012	39,500	31,800
Total cash farm receipts	1,043,720	987,092	1,079,165	1,151,468	1,193,742	1,194,717

[a]Includes sorghum grain and lespedeza seed.

[b]Includes beans, cucumbers, peppers, sweet corn, onions, lettuce, tomatoes, etc.

[c]Preliminary.

Source: Farm Income Situation, ERS, USDA, various issues and including supplements, August 1963 and 1964.

Table 61. Total value of farm production, North Carolina, 1933-1963

Year	Gross income[a]	Value of home consumption	
		Value	Percent of total
	(1,000 dols.)	(1,000 dols.)	(percent)
1933	215,425	57,647	26.76
1934	312,581	63,492	20.31
1935	306,136	72,747	23.76
1936	303,951	77,213	25.40
1937	353,666	81,093	22.93
1938	308,535	75,822	24.57
1939	314,569	75,202	23.91
1940	290,781	74,664	25.68
1941	381,925	84,349	22.09
1942	542,614	95,965	17.69
1943	610,999	114,953	18.81
1944	746,192	125,159	16.77
1945	770,095	131,681	17.10
1946	909,741	154,636	17.00
1947	954,032	186,516	19.55
1948	960,426	169,429	17.64
1949	864,556	146,030	16.89
1950	954,705	129,382	13.55
1951	1,100,774	138,662	12.60
1952	1,080,954	139,036	12.86
1953	1,055,032	145,900	13.83
1954	1,077,288	139,704	12.97
1955	1,111,122	131,616	11.85
1956	1,151,106	137,435	11.94
1957	1,028,627	134,856	13.11
1958	1,181,634	137,914	11.67
1959	1,103,296	116,204	10.53
1960	1,173,719	94,554	8.06
1961	1,240,734	89,266	7.19
1962	1,275,735	81,993	6.68
1963[b]	1,281,130	76,413	5.96

[a]Includes cash receipts from marketing, government payments and value of home consumption.

[b]Preliminary.

Source: Farm Income Situation, ERS, USDA, various issues.

value of production. This means that farm people have been consuming proportionately less of their increase in production although the state ranks first in the value of home consumption of both crop and livestock products.

The above measures can be viewed on the basis of per capita farm income as shown in Table 62. These data are obtained by dividing the total by the estimated farm population. It must be recognized that part of the increase is due to a decrease in farm population. In other words, it amounts to fewer farm people sharing in an increasing farm income.

Personal per capita income in North Carolina has shown a very marked upward trend since 1940 (Table 63). This does not give a clear picture of consumer buying power of North Carolina residents but does indicate one measure of economic growth in the state. Much of this can be attributed to increased industrial activity which has resulted in a large increase in number of persons employed outside of agriculture at higher wages than usually earned on farms.

Complete data are not available for the state on per capita disposable income but years for which data are available show that this measure of income is increasing. This means that consumer buying power is increasing.

Some contrast between different measures of farm income and expenditures is presented in Table 64. Due to differences in definition the data are not completely comparable but indicate the general trend for the different series shown. It should be noted that total net income per farm increased 51 percent in 1962 over 1950. Part of this increase is due to a decrease in number of farms and increase in the size of farm businesses. Total production expenses for all farms in the state increased 70 percent between 1950 and 1962 and was up 5 percent in 1963 over 1962. Total net income per farm dropped 4.5 percent in 1963.

Another indication of the increase in cost of production is shown in Table 65. Some of the major items used in annual production have been selected to show the increase in production expenses between 1956 and 1962. The average total increase was 25 percent for the items shown. The largest increase was expenditures for feed which is associated with the rapid growth of livestock and poultry enterprises in the state. The increases in general are due to an increase in quantities of goods and services purchased by farmers and higher prices paid for production factors.

Table 62. Per capita farm income, North Carolina, 1930-1963

Year	Per capita farm income	
	Cash[a]	Gross[b]
	(dols.)	(dols.)
1930	115	164
1931	80	123
1932	61	96
1933	94	129
1934	145	183
1935	134	179
1936	136	183
1937	158	208
1938	131	177
1939	132	178
1940	130	176
1941	175	227
1942	269	330
1943	331	410
1944	429	518
1945	452	547
1946	n. a.	n. a.
1947	n. a.	n. a.
1948	n. a.	n. a.
1949	n. a.	n. a.
1950	612	724
1951	745	872
1952	759	888
1953	785	914
1954	830	959
1955	896	1,023
1956	979	1,113
1957	913	1,051
1958	1,134	1,270
1959	1,105	1,219
1960	1,335	1,451
1961	1,532	1,651
1962	1,718	1,836
1963[c]	1,873	1,993

[a]Includes cash receipts from sales and government payments.

[b]Includes cash farm receipts, government payments and value of farm products consumed on farms.

[c]Preliminary.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh: - n. a. data not available for 1946-49.

Table 63. Personal per capita income, North Carolina, 1940-1963 and per capita disposable income for selected years

Year	Per capita personal income	Per capita disposable income[a]
	(dollars)	
1940	328	317
1941	426	--
1942	575	--
1943	691	--
1944	765	--
1945	821	797
1946	858	--
1947	894	--
1948	943	--
1949	919	--
1950	1,012	944
1951	1,115	--
1952	1,152	--
1953	1,172	1,064
1954	1,200	--
1955	1,285	1,179
1956	1,348	--
1957	1,345	1,218
1958	1,416	--
1959	1,492	1,344
1960	1,562	--
1961	1,638	1,466
1962	1,738	--
1963[b]	1,807	1,602

[a]Data available only by intermittent periods.

[b]Preliminary.

Source: U. S. Department of Commerce, Survey of Current Business and Supplements, various issues.

Table 64. General farm income and expense trends, North Carolina, 1949-1963

Year	Realized gross income per farm[a]	Realized net income per farm[b]	Total net income per farm[c]	Total current farm operating expenses[d]	Total production expenses[e]
	(dols.)	(dols.)	(dols.)	(mil. dols.)	(mil. dols.)
1949	3,166	1,809	1,747	306.0	408.3
1950	3,471	2,040	2,037	310.2	430.6
1951	4,129	2,430	2,553	349.4	494.4
1952	4,191	2,317	2,267	381.7	526.5
1953	4,272	2,323	2,280	383.6	530.0
1954	4,326	2,288	2,232	391.9	544.1
1955	4,530	2,395	2,510	395.0	555.0
1956	4,814	2,415	2,460	433.8	599.9
1957	4,491	1,983	1,891	442.5	601.8
1958	5,343	2,525	2,557	474.0	648.2
1959	5,116	2,065	2,056	488.2	671.2
1960	5,851	2,685	2,660	481.9	671.2
1961	6,401	2,935	2,945	515.2	706.8
1962	6,751	3,087	3,075	534.5	732.8
1963[f]	6,796	2,907	2,936	566.7	769.9

[a]Excludes changes in inventories.

[b]Excludes changes in inventories, and represents income to farm operators.

[c]Includes inventory changes, and represents returns to farm operators.

[d]Includes production materials, repairs and maintenance of capital items and hired labor.

[e]In addition to (d) above, includes depreciation, taxes, interest and net rent to landlords.

[f]Preliminary.

Source: Farm Income Situation, ERS, USDA, various issues.

Table 65. Farmer expenditures for selected production factors in North Carolina, 1956 and 1962

Items	Amount		Percent change 1956-1962
	1956	1962	
	(mil. dols.)		
Feed	80.5	124.2	54.3
Fertilizer and lime	77.4	78.9	2.9
New machinery and equipment	62.2	74.5	19.8
Building materials	50.0	66.4	32.8
Petroleum	41.9	46.6	11.2
Repairs and maintenance	15.1	17.2	13.9
Seed	9.4	9.7	3.2
Miscellaneous operating supplies	23.9	33.6	40.6
Total[a]	360.4	451.1	25.2

[a]Does not include hired labor, taxes, interest, insurance, depreciation, etc.

Source: USDA, Farmer Cooperative Service, Cash Expenditures for Production, Supplies and Equipment, 1956, 1962.

Reference has been made to change in capital requirements in agriculture. It has been estimated that farmers spend about $715 million annually for goods and services used in farm production.[20] A partial breakdown of some sample items of annual production expenses was presented in Table 65.

Much of the additional capital going into agriculture represents credit of some type and from a number of different sources. Credit is both an asset and a liability. As an asset it is a means of bridging the gap between the resources which the farmer owns or has control of and those needed to develop a more efficient and profitable farm organization. The liability aspects stem from the added cost of production with the use of credit and particularly when credit is not used wisely.

[20]North Carolina Agriculture in the State's Economy, N. C. Department of Agriculture. Presumably this estimate includes expenditures for all items used in current production, labor, taxes, insurance, depreciation, and miscellaneous goods and services.

The old adage that "it takes money to make money" is not foreign to the growth in the economic stature of agriculture. In fact it has been an important stimulus in many phases of our agricultural development. Accumulation of liquid assets is a slow process in farming which has necessitated obtaining capital from outside sources to expedite the changes which are being made.

Farm credit consists of two major types -- nonreal estate and real estate. Nonreal estate loans are all agricultural loans not secured by farm real estate. These include loans that are made to meet current operating and living expenses usually repayable within twelve months, as well as loans for intermediate-type investments such as machinery, livestock and property improvements requiring longer than a one-year repayment program. Such loans are frequently secured by chattel mortgages. A summary of outstanding nonreal estate loans in North Carolina as of January 1, 1964, is shown in Table 66.

Table 66. Nonreal estate loans held by principal lenders, North Carolina, January 1, 1964

Lender		Amount outstanding January 1, 1964	Percent change from 1/1/63	Percent change from 1/1/59
Banks		$ 58,114,000	15	63
Production Credit Associations		61,769,000	16	104
Farmers Home Administration:				
Operating	$13,269,000			
Emergency	519,000			
Special livestock loans	2,000	13,790,000	3	47
Total[a]		$133,673,000	14	78

[a]Does not include loans held by nonreporting agencies such as merchants and dealers.

Source: Agricultural Committee, The American Bankers Association, June, 1964.

The FHA reported 4,594 farmers served in 1963 with $6.8 million of loans including operation and emergency credit. No data are available on credit obtained from other sources, such as time merchants, fertilizer and feed dealers, equipment dealers and individuals.

Real estate loans are those secured by mortgages on farmland including improvements. They reflect outlays for the purchase of farm units, additional land, and/or a combination of the purposes listed under nonreal estate loans, including the financing of existing debts (Table 67).

Table 67. Real estate loans held by principal lenders, North Carolina, January 1, 1964

Lender	Amount outstanding January 1, 1964	Percent change from 1/1/63	Percent change from 1/1/59
Banks	$ 52,320,000	13	35
Federal Land Banks	77,349,000	12	93
Insurance Companies	44,143,000	3	29
Individual and Others[a]	136,866,000	8	23
Farmers Home Administration:[b]	31,985,000	14	77
Farm Ownership $31,765,000			
Direct 14,871,000			
Insured 16,894,000			
Soil and Water Conservation $220,000			
Direct 117,000			
Insured 103,000			
Total	$342,663,000	10	42

[a]Approximate figure for use only as a general indicator.

[b]Does not include $33,876,000 for rural housing which was 27.1 percent greater than for 1963.

Source: Agricultural Committee, The American Bankers Association, June, 1964.

The trend in total farm mortgage indebtedness compared with total cash farm receipts is shown in Table 68. There does not appear to be any consistent relationship between total cash receipts and changes in mortgage indebtedness. There was a rather sharp increase in total cash receipts beginning in 1941 and, although the trend has continued upward, it has not been consistent for all years in the series. Farm mortgage indebtedness began a rather substantial and continuing increase in 1951. In that year, total mortgage indebtedness amounted to 11 percent of total cash receipts. By 1962 this ratio had increased to 26.9 percent. This increase in fixed debt obligations of farmers coupled with rising production costs has placed many farmers under a rather severe economic strain. The problem becomes more critical

Table 68. Trend in total cash farm receipts and farm mortgage debt, North Carolina, 1933-1963

Year	Total cash farm receipts[a]	Total farm mortgage debt
	($1000)	($1000)
1933	157,778	95,249
1934	249,089	88,497
1935	233,389	93,905
1936	226,738	92,942
1937	272,573	91,799
1938	232,713	90,336
1939	239,367	89,685
1940	216,117	90,071
1941	297,576	93,840
1942	446,649	96,314
1943	496,046	88,394
1944	621,033	80,192
1945	638,414	73,917
1946	755,105	78,085
1947	767,516	90,085
1948	790,996	98,748
1949	718,526	100,757
1950	825,323	89,010
1951	962,112	105,590
1952	941,918	122,098
1953	909,132	140,367
1954	937,584	155,096
1955	979,506	169,999
1956	1,013,671	187,739
1957	893,771	200,773
1958	1,043,720	217,821
1959	987,092	240,956
1960	1,079,165	267,969
1961	1,151,468	293,447
1962	1,193,742	320,597
1963[b]	1,194,717	312,112

[a]Includes government payments.

[b]Preliminary.

Source: Total cash farm receipts, 1933-1950: USDA, BAE, Cash Receipts and Value of Home Consumption by States, 1924-51, Sept. 1952. Total farm mortgage debt: Issues of Agricultural Finance Review, November, 1944 on.

where additional capital is needed for making adjustments in the farm organization necessary to achieve a high level of efficiency in the farm operation.

Because of availability of data, Production Credit Associations in North Carolina are used to provide an example of the expanding use of credit by farmers, especially in connection with the financing of current operations. Table 69 shows lending activities of this agency for selected years. It will be noted that there has been a large increase in the amount of debt carried over. However, this is due mainly to a change in the law regulating lending policies. Loans can now be made for capital improvements with repayment schedules of up to seven years.

It is evident that the increase in size of farms and the application of capital-using technology are increasing the need for more investment and operating capital in agriculture. This is essential for increasing production efficiency on large numbers of farms where major changes in organization must be made to meet the impact of technology and changing economic conditions. It has been estimated that short-term and intermediate credit needs of farmers may double within the next ten years if present transitional trends continue. Present indications are that the movement in this direction is very definitely underway. There is no evidence to indicate the demand for long-term credit is likely to decrease in the near future. However, in view of a possible decline in net farm income, borrowers and lenders should place special emphasis upon expected earnings from added capital in making financial arrangements for the organization and operation of individual farm units.

Table 69. Summary of credit operations, Production Credit Associations, North Carolina, selected years

Year	Number of associations	Number of members, December 31	Number of farmers served	Amount of loans	Loans outstanding, December 31
				(thousand dols.)	
1953	27	37,279	21,386[a]	32,368	9,127
1955	27	36,882	20,442[a]	36,610	11,081
1957	27	37,192	22,283[a]	47,246	23,126
1959	27	37,380	21,851[b]	57,102	37,036
1962	25	40,610	22,564[b]	73,355	53,085
1963	24	40,956	24,206[b]	78,266	61,768
Percent change, 1953-63		9.9		141.8	576.8

[a]Number loans made.

[b]Number of borrowers served, some with more than one loan.

Source: Annual Summary, Production Credit Association, issues as indicated.

SOME STRUCTURAL CHANGES IN NORTH CAROLINA AGRICULTURE

Changes with respect to farm and nonfarm population, employment in agriculture and nonagricultural categories, and composition of farm operators were discussed in the section on "Population Characteristics".

In addition to population changes affecting agriculture there have been many changes in physical characteristics such as the kind and amount of resources used in agricultural production, organization of farms and capital structure. Table 70 is a summary of changes in numbers of farms, land resources in the state and real estate values from 1920 to 1959.

The number of farms and total land in farms have been decreasing. However, the average size of farms and average value of land and buildings have increased. Census data do not give a clear picture of the magnitude of these changes,especially in the size of farms,because of the changes in definition and classification of farms. For example, subdivisions of multiple unit operations may be classed as individual farm units. Also, North Carolina had a decrease of 16,671 farms from 1954 to 1959 due to changes in the definition of farms. Another example is that of the 190,567 farms reported in 1959 only 120,068 were classified as commercial farms. This can be explained, in part, by the fact that 30 percent of all farms had less than 10 acres of cropland harvested in 1959.

It is obvious from the data in Table 71 that the number of small farms is decreasing and the number of larger farms (50 acres or more) is increasing. One reason for this is the decided drop in the number of tenant operated units, a large number of which have been consolidated into larger single-unit operations.

The changes in size of farms, systems of farming and organization has been accompanied by considerable change in capital structure of farms but mostly in terms of the very large amount of capital needed for efficient producing units.

The value of land and buildings per farm increased from $3,490 in 1945 to $14,685 in 1959.[21] Much of this rise in value is due to an increase in productivity of land which has contributed to higher levels of income, physical improvements on farms and competitive bidding for land resources needed in the movement toward establishment of larger farm units. Another important factor contributing to the

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[21] U. S. Census of Agriculture, 1959, U. S. Government Printing Office, Washington.

Table 70. Number of farms, land in farms, size of farms and farm values, North Carolina, 1920-1959

Year	Number of farms	Land in farms	Percent all land in farms	Average size of farm	Cropland harvested		Total other cropland[a]	Value land and buildings	
					Total	Average per farm		Per farm	Per acre
	(1,000) (acres)	(acres)	(percent)	(acres)	(1,000) (acres)	(acres)	(1,000) (acres)	(dollars)	
1920	269,763	20,022	64.2	74.2	5,851	21.7	--	3,990	53.76
1925	283,482	18,594	59.6	65.6	5,575	19.7	2,164	3,267	49.80
1930	279,708	18,055	57.9	64.5	5,810	20.8	2,090	3,018	46.75
1935	300,967	19,936	63.9	66.2	5,966	19.8	2,278	2,069	31.24
1940	278,726	18,845	59.9	67.7	6,125	22.0	2,297	2,647	39.09
1945	287,412	18,618	59.2	64.8	6,126	21.3	1,475	3,490	53.87
1950	288,508	19,318	61.5	67.0	5,782	20.0	1,916	6,490	98.65
1954	267,906	18,260	58.1	68.2	5,504	20.5	1,550	8,063	128.08
1959	190,567	15,888	50.6	83.4	4,746	24.9	1,670	14,685	193.43

[a]Cropland used for pasture, not harvested and not pastured.

Source: U. S. Census of Agriculture, 1959, U. S. Government Printing Office, Washington.

Table 71. Distribution of farms according to size and income, North Carolina, 1954 and 1959

Item	1954	1959
Number of farms	267,906	190,567[a]
Land in farms (1,000 acres)	18,260	15,888
Percent of farms having:		
Less than 10 acres	12.9	9.3
10-49 acres	47.0	42.6
50-99 acres	22.2	24.5
100 acres and over	17.9	23.6
Percent of farms reporting cropland harvested:		
Less than 10 acres	31.5	30.2
10-19 acres	27.5	25.2
20-29 acres	18.7	16.9
30-49 acres	14.5	15.6
50-99 acres	6.1	8.8
100-199 acres	1.4	2.5
200 acres and over	.3	.8
Number of commercial farms	181,660	120,068
Percent of commercial farms selling:		
Under $5,000	81.1	58.5
$5,000 to $9,999	15.2	27.9
$10,000 and over	3.7	13.9

[a]Decrease of 16,671 farms from 1954 to 1959 due to change in definition of farms.

Source: U. S. Census of Agriculture, 1954 and 1959, U. S. Government Printing Office, Washington.

increase in land values in recent years has been the inflationary trends in the general level of prices growing out of the tremendous acceleration in economic activity during and following World War II.

Table 72 shows a comparison of real estate values in North Carolina and for the United States, 1950-1963. Value per acre in the

Table 72. Farm real estate: Average value of land and buildings per acre, North Carolina and the United States, 1950-1963

Year	Average value per acre		Index of average value per acre
	N. C.	U. S.[a]	N. C.[b]
	(dollars)		
1950	99	65	106
1951	108	75	117
1952	122	82	132
1953	128	83	138
1954	125	82	133
1955	130	85	140
1956	139	90	146
1957	153	97	154
1958	165	103	166
1959	177	111	170
1960	186	116	173
1961	194	118	178
1962	211	124	194
1963	218	130	-

[a]Excludes Alaska and Hawaii.

[b]Includes farm land and improvements. Base period, 1947-49= 100.
Source: The Farm Real Estate Market, ARS, USDA, various issues.

state has been consistently higher than the average for the United States and has increased at a faster rate. One reason for the high land values in the state not mentioned above is the high value placed on allotments for such crops as tobacco, cotton, peanuts and other commodities subject to production controls.

Large amounts of capital are being invested in new and specialized types of buildings such as grain storage and drying facilities, bulk curing tobacco barns, special facilities for feeding and watering livestock

and poultry, irrigation equipment, pasture development and mechanized equipment of all kinds. The increased use of tractor power has been accompanied by tremendous investments in complementary equipment. For example, the following estimates of investment in some of the major items of mechanized equipment in North Carolina indicate to some extent the magnitude of capital requirements in agriculture:[22]

Item	Amount (1,000 dols.)	Item	Amount (1,000 dols.)
Tractors	468,930	Combines	80,000
Trucks	171,380	Driers	2,657
Field forage harvesters	10,500	Conveyors	4,538
Pickup balers	18,150	Bulk milk tanks	10,640
Corn pickers	18,480	Milking machines	2,701
		Cotton pickers	7,975

These items represent only a small sample of the total investment in the thousands of items of mechanized equipment used in farming operations of the state.

Mechanization has been the most important single factor instrumental in the increase in size of farms and release of farm labor to nonagricultural segments of the economy. Table 73 shows the rapid disappearance of workstock as a source of farm power and the large increase in number of tractors on farms.

The large investment in mechanized equipment contributed to higher operating costs because of added expenses for operation and maintenance, replacement of obsolete equipment, housing, depreciation, taxes, etc. However, many other innovations have been combined with mechanization to aid farmers in reducing cost per unit of output for many farm products.

Increase in power and equipment cost can be compensated for mainly by reductions in labor costs. Also, mechanizing farm operations often results in a better seasonal distribution of labor inputs and permits more efficient allocation of labor resources to different enterprises.

Some recent studies indicate how the labor situation can be altered through mechanization. One example is found in a study of a mechanized system of peanut production.[23] The study covering the period 1957-59

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[22] North Carolina Agriculture in the State's Economy, N. C. Department of Agriculture. Based upon reports from the U. S. Census of Agriculture, 1959.

[23] Walter H. Pierce and William T. Mills, An Evaluation of a Mechanized System of Peanut Production in North Carolina, Bulletin 413, North Carolina Agricultural Experiment Station, Raleigh, August, 1961.

Table 73. Comparison of changes in number of workstock and tractors on farms, North Carolina, 1940-1963

Year	Estimated number workstock	Number of tractors
	(1,000)	
1940	370	12,756
1941	376	--
1942	378	--
1943	383	--
1944	391	--
1945	385	31,189
1946	379	--
1947	375	--
1948	370	--
1949	360	--
1950	353	73,497
1951	334	--
1952	314	--
1953	290	--
1954	271	125,985
1955	248	--
1956	231	--
1957	213	--
1958	192	--
1959	169	150,737
1960	155	--
1961	a	--
1962	a	--
1963	a	--

[a]Estimates discontinued.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues. U. S. Census of Agriculture, 1959, U. S. Government Printing Office, Washington.

showed that approximately 38 percent of all labor used up to time of harvest involved the use of mechanized equipment. Using the windrow method of harvesting reduced labor requirements approximately 84 percent. The harvest team was reduced to two men as compared to 10 to 12 men required with the stackpole method of harvesting. The overall reduction in labor amounted to approximately 41 percent.

Cotton is another example of how tremendous savings in labor can be made by mechanizing production. The traditional method of production where workstock and hand labor methods were used required about 135 man-hours per acre. Mechanizing cotton up to time of harvest reduced labor requirements about 57 percent. Mechanized harvesting can save about 80 man-hours per acre. Total mechanization results in a reduction of almost 82 percent in total labor requirements.[24]

Mechanization of tobacco production has been somewhat more difficult, particularly in the harvesting stage. Mechanizing preharvest operations has proved to be feasible and economically practical, especially when much of the equipment for land preparation, planting, cultivation and other operations already is available on farms where other enterprises have been mechanized. One study showed that mechanized preharvest operations could reduce labor inputs 54 man-hours per acre.[25]

Harvesting presents a different problem. Some investigations of a preliminary nature have been made. The following data from one study provide some indication of potential savings in harvest labor with different systems:[26]

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[24] J. G. Sutherland, Cotton Production Practices, Coastal Plains Area, North Carolina, Department of Agricultural Economics, N. C. State College, Raleigh, A. E. Information Series No. 27, November 1950; Walter H. Pierce, Make Money on Cotton--Use Recommended Practices, Department of Agricultural Economics, N. C. State College, Raleigh, A. E. Information Series No. 41, March 1955.

[25] W. W. McPherson, Will it Pay to Mechanize Tobacco? Department of Agricultural Economics, N. C. State College, Raleigh, A. E. Information Series No. 37, December 1954.

[26] Garnett L. Bradford, "Implications of Mechanized Flue-Cured Tobacco Harvesting for Farm Adjustments," The Tobacco Industry in Perspective, API Series 11, May, 1964, Department of Agricultural Economics, North Carolina State College, Raleigh.

System	Capacity (acres/week)	Average crew size	Est. labor (hours/acre)
Conventional	varies with crew	12-15	175
Automatic looper or stringer	30	10-12[a]	125
Completely mechanical harvester (bulk curing)[b]	40	4-5[c]	40

[a]Assumes hanging in barn is going on simultaneously with priming.

[b]Still in the commercial development stage.

[c]If a gleaner is used, a crew of 5 is required.

Increases in yields, changes in cultural practices and continuing modifications in mechanical harvesting equipment make it difficult to be specific as to how much labor can be saved through mechanization and use of other labor-saving techniques. There is evidence that the pattern of labor inputs definitely is in a process of change.

In addition to mechanization, widespread use of chemicals for control of weeds and grass, insects and disease also has been an important factor in reducing labor inputs. In many cases rates of production and quality have been improved through proper use of chemicals recommended for different purposes.

Other adjustments involve changes in farming systems stemming partly from the influence of agricultural policies and programs, changes in the relative profitableness of different enterprises and the introduction of new enterprises on many farms. The general aspects of different enterprises have been discussed in previous sections. However, a general summary of the distribution of cropland harvested among the crops or groups of related crops presented in Table 74 provides a better view of some of the shifts which have occurred. Years from 1949-1963 have been divided into 5-year periods to average out some of the extreme year-to-year variations. The percentage distribution of cropland harvested in each period is based upon total cropland for the crops listed and not total cropland as reported by the census.

Differences in percentages between groups of years indicate shifts in emphasis placed upon different crops. Total acres of these crops harvested decreased but some more than others and for different reasons. Variations in allotted acres for crops under control were not proportionate in any way. For some crops, acres increased between years while other crops showed a decrease. The only crop showing an

Table 74. Distribution of cropland harvested among major crops and groups of related crops by five-year periods, North Carolina, 1949-1963

Crops	1949-53		1954-58		1959-63	
	Average acres harvested	Percent of total	Average acres harvested	Percent of total	Average acres harvested	Percent of total
	(1,000)	(percent)	(1,000)	(percent)	(1,000)	(percent)
Tobacco[a]	692.4	14.0	568.2	13.0	474.2	12.3
Cotton	736.4	14.9	414.4	9.5	391.0	10.2
Peanuts	211.8	11.3	184.0	4.2	176.4	4.6
Corn	2,099.2	42.4	1,840.0	42.0	1,516.0	39.4
Small grains[b]	771.2	15.6	865.1	19.8	647.1	16.8
Soybeans	282.8	5.7	376.0	8.6	541.0	14.1
Truck crops[c]	153.6	3.1	131.6	3.0	102.0	2.7
Total[d]	4,947.4	--	4,379.3	--	3,847.6	--

Table 74 (continued)

Crops	1949-63		Average percent change		
	Average acres harvested	Percent of total	1949-53 to 1954-58	1954-58 to 1959-63	1949-53 to 1959-63
	(1,000)	(percent)			
Tobacco[a]	578.3	13.2	-17.9	-16.5	-31.5
Cotton	514.0	11.7	-43.7	- 5.6	-46.9
Peanuts	190.7	4.3	-13.3	- 4.1	-16.7
Corn	1,818.7	41.4	-12.4	- 17.6	-28.8
Small grains[b]	761.1	17.3	12.2	-25.2	-25.2
Soybeans	400.0	9.1	33.3	43.9	91.3
Truck crops[c]	129.1	2.9	-14.3	-22.6	-33.6
Total[d]	4,391.8	--	-11.5	-12.1	-11.2

[a]Includes flue-cured and burley tobacco.

[b]Includes wheat, oats, barley, rye and sorghum grain.

[c]Includes major commercial vegetable crops, Irish potatoes, sweet potatoes plus cantaloupes, watermelons and strawberries.

[d]Summation of harvested acres for all crops or groups of crops listed. Does not include pasture or forage crops and does not account for acres double-cropped.

Source: N. C. Agricultural Statistics, Federal-State Crop Reporting Service, N. C. Department of Agriculture, Raleigh, various issues.

absolute increase in actual acres over the 15-year period was soybeans. Cotton, truck crops, tobacco, corn and small grains showed the largest percentage decrease in the order named.

These reductions in acres and shifts in emphasis among different crops contributed to considerable change in organization on many farms. The addition or expansion of livestock and/or poultry enterprises necessitated shifts in allocation of resources within farming systems. Combinations of resources on farms have changed, either by adding more capital or substituting capital for labor. In many instances diversified systems of farming have been converted to more highly specialized farming systems.

SOME GENERAL OBSERVATIONS ON AGRICULTURAL DEVELOPMENT IN NORTH CAROLINA

Agriculture with all its components of agribusiness is the largest and perhaps the most complex industry in our national economy. The vastness of agriculture in North Carolina cannot be measured merely by the volume of output from the many enterprises included in our farm production activities nor in terms of income received by farmers for the products they market.

Approximately $1.2 billion of products were sold from farms in 1962. Based upon the farmers' share of the retail cost of these products to consumers, the estimated retail value amounted to more than $3.7 billion (Table 75). The difference of about $2.55 billion represents the utility value added after the products entered the market channels. Services performed such as assembling, storage, processing, transportation, financing and selling widens the gap between farm and retail price.

Farmers provide a very large market for goods and services needed to carry out their production activities. These expenditures added to the estimated retail value of farm products sold give the state a total agribusiness of more than $4 billion per year. Many thousands of workers other than people on farms are required to carry out the many varied and complex activities involved in achieving the high level of efficiency necessary for the smooth functioning of the entire system.

There are certain characteristics embodied in the agriculture of North Carolina which must be recognized in the development of future agricultural programs. Despite the trend toward larger farm operating units, we undoubtedly will continue to have a large number of small farms, including many part-time farm operators. In these cases special attention must be given to help increase efficiency and intensify use of available resources on these farms. Even so, if a

Table 75. Estimated retail value of farm commodities sold by farmers in North Carolina, 1963 preliminary

Commodity	Farmer's share of retail cost[a]	Cash farm receipts	Estimated retail value[b]
	(percent)	($1,000)	($1,000)
Tobacco	23[c]	546,599	2,376,517
Corn and small grain (including soybeans)	50[d]	90,065	180,130
Vegetables, fruits and tree nuts	32	32,276	100,862
Other crops	37[e]	113,389	306,457
All crops	26	782,329	2,963,966
Dairy products	43	72,229	167,974
Beef (choice)	58	31,593	54,471
Hogs	47	49,521	105,364
Broilers, chickens and turkeys	57	116,996	205,256
Eggs (Grade A large)	61	72,518	118,882
Other livestock and livestock products	37[e]	2,627	7,100
All livestock and poultry	52	345,484	659,047
Forestry, greenhouse and nursery	37[e]	35,104	94,876
Total	31	1,162,917	3,717,889

[a]Based on farmer's share of retail cost in U. S. according to USDA studies unless shown otherwise.

[b]Estimated by dividing farm sales by farmer's share of retail cost.

[c]Farmer's share of retail cost excluding excise taxes on tobacco products.

[d]Estimated.

[e]Assumed at level of the marked basket of farm foods.

Source: Compiled by Extension Farm Management and Marketing staff, North Carolina Agricultural Extension Service.

decrease in the general price level of farm products should occur, coupled with rising costs of production, many families on small farms will be forced to seek other employment opportunities. In fact, it would appear desirable from the standpoint of their own economic welfare and the economy of the state to encourage and help disadvantaged families to make these adjustments.

The wide diversity of agriculture, stemming largely from wide variations in the physical characteristics (soils, topography and climate), precludes a high degree of specialization on a state-wide basis. Some exceptions have been noted in the cases of particular types of enterprises. Continuance of a highly diversified agriculture will require increased emphasis on research in many fields including plant and animal breeding, insect and disease control, mechanization, processing and marketing of farm products and many other areas where technological advances contribute to changes in the structure of agriculture from the standpoint of organization and operation of the farm business. It is important that research activities be closely coordinated in related fields so as to facilitate a broader attack on problems that are interrelated.

Initiative on the part of individual farmers must be encouraged, especially in the adoption of new methods and techniques which contribute to increased efficiency in production and marketing. This is a challenge which requires intensive educational programs over a wide range of agricultural activity. Farmers not only need to know the value of new forms of technology, but also when and how to adapt such innovations into their farm operations.

Although individual initiative is important, individualism should not be made paramount in planning for the future. Farmers face an inelastic demand curve in the marketing of their products and acting independently of the total agricultural economy in making their production decisions is most likely to result in undesirable effects upon quantity-price relationships for all of the farmers in different commodity groups. Thus, some method of coordinating farmer decisions as to what and how much to produce appears necessary to insure that consumer needs are met and that production and consumption are kept in reasonable balance. The system of allotments and marketing quotas which has been applied to many agricultural products during the past thirty years has been directed toward the above objectives. Although the programs followed have not always been completely effective, they have contributed to higher prices and levels of farm income. It seems evident that some control over farmer decisions must be continued to insure the use of agricultural resources to the best economic advantage.

As the economic structure of the state and nation changes, farm programs must be modified to meet changing conditions. Farmers must be kept abreast of changes in policies affecting their individual planning. Greater emphasis on farm planning and farm records is needed. As farm units become larger and more commercialized, the business aspects of the farm operation not only becomes more important but more complex.

It is not difficult to view what has happened in the past although some problems arise in trying to interpret the cause of certain changes and to evaluate the impact of such changes upon the economic and social structure of an area and its people. Historic changes in agriculture during the past few decades should point the direction of changes and challenges in the years ahead. Even so, the future cannot be predicted with any degree of certainty. The economic and political climate during the next decade could be so greatly different from what might be anticipated that specific projections could be inaccurate and misleading in the formulation of future plans for continued progress toward the economic and social goals desired.

Even in the absence of specific projections, forward looking goals can be established and plans developed for achieving them. Such goals must be objective and realistic. Although consideration must be given to the varying conditions surrounding individual farms and other segments of the industry, goals must be broad enough in scope to be applicable and beneficial throughout the industry. This means that farm people, local business and civic leaders, farm organizations and agricultural agencies must work together in a broad attack on agricultural and related economic and social problems.

Goals whether established on a local basis or even on a national basis will need to be modified over time or new goals established as changes occur in the economic and political environment of the state's economy. New problems will arise which must be identified, defined and methods of solving them developed. This will require continued coordination of research and educational activities and close cooperation of all other segments of the economy.